CutLogic 2D

User's Manual

Top class optimization software

Product of

TMachines evolutionary software

www.tmachines.com

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Welcome to CutLogic 2D!

Thank you for your interest in CutLogic 2D - panel cutting optimization software. CutLogic 2D is a solution for finding optimal cutting layouts with minimal waste, saving your material, time and money.

Since 2002 TMachines has provided top class software solutions in the area of cutting optimization for their customers. CutLogic 2D brings you the best of our know-how as well as many improvements inspired by our customers. We know every customer has specific needs, therefore we have prepared well tuned editions of CutLogic 2D:

- Standard Edition (SE)

  Ideal solution designed for individuals or as a starter package for small and medium business (SMB) segments. This edition provides full Inventory Management and state-of-the-art optimization engine based on AI programming technique, the same one for all editions. No customization and no editable reports are available for this edition.

- Professional Edition (PE)

  Right solution designed for needs of SMB. It provides full Inventory Management and state-of-the-art optimization engine based on AI programming technique, the same one for all editions. This edition supports more import/export formats and contains embedded report designer for customization of reports. On demand customization of software is possible only for reports and import/export functionality.

- Enterprise edition (EE)

  Solution designed for enterprise customers. It provides full Inventory Management and state-of-the-art optimization engine based on AI programming technique, the same one for all editions. All input/output formats are supported in this edition. Also full on demand customizations and extra Enterprise+ add-ons are available for this edition.

See chapter Edition comparison for details.

Today, our solutions help companies in more than 65 countries worldwide on daily basis to maximize their cost savings.
We believe you will be satisfied with our program and we wish you a lot of savings with CutLogic 2D.

Authors

Contact and Support

Feel free to contact us via e-mail in any matter related to our products and services. We will make sure your inquiries will be processed and answered as soon as possible.

Non technical questions

If you have any general questions or any non technical questions regarding pricing, ordering and licensing of CutLogic 2D, please contact us at:

E-mail: sales@tmachines.com

Technical questions

If you have any technical questions regarding CutLogic 2D's functionality, features, working with program or modifications, please contact us at:

E-mail: support@tmachines.com

See also our regularly updated web for news and updates at: www.tmachines.com

Street and mailing address:

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Namestie SNP 17
974 01 Banska Bystrica
Slovakia

Introduction

What is CutLogic 2D?

- CutLogic 2D is a top class panel cutting optimization software for cutting rectangular material like panels, sheets or rolls in industries such as woodworking, furniture, sheet metal, glass cutting, etc.
- CutLogic 2D automatically finds optimal cutting layouts, using the most advanced optimization techniques. Its optimization engine takes advantage of Genetic Algorithms and Fuzzy Logic which represent fundamental techniques of modern Artificial Intelligence and bring better results than any other software.
- CutLogic 2D is a complete solution for both guillotine and non-guillotine cutting, based on IT standards with friendly user interface. It provides extensive features such as full material and remnant management, enhanced reporting functionality or multi format import and export of data for seamless integration with your existing working system and much more.

Genetic Algorithms and Fuzzy Logic

Genetic Algorithms

Genetic algorithm is an algorithm that mimics evolution and competition between individuals in natural selection. Tasks are encoded to genes of individuals and evolution produces better individuals with better solving. Neither programmer nor genetic algorithm has to know how to solve a given problem; solution is just bred. Genetic algorithms and genetic programming belong to evolutionary computation and artificial intelligence.

Fuzzy Logic

Fuzzy Logic is a truth-functional system that mimics natural thinking in a sense of dealing with the degree of truth rather than just with True and False. In Boolean logic an event can be only False (0) or True (1); in fuzzy logic an event can be sort of true - a number between 0 and 1.

What's New in CutLogic 2D Version 3.8?

What's New in Version 3.8?

Optimization & cut options

- Added full support for cutting from rolls and slitting & shearing
- Adjustable maximum number of knives / cuts (both vertical and horizontal)

Reports

- Capability to create charts

General

- Configurable sorting of layouts and layout parts
- Several smaller improvements and fixes

Version 3.7

Optimization & cut options

- Added cutting option Minimum repeat of layouts

General

- Several smaller improvements and fixes

Version 3.6

Optimization & cut options

- Added cut table length – maximum length of horizontal cuts
- Added cut table width – maximum length of vertical cuts
- Improved constraint Grip size – now allow also parts smaller than grip

General

- Closed plans can be deleted now
- Material lookup table sorted by description
- Several smaller improvements and fixes

Version 3.5

Import/Export

- Added import and export of whole plan from/to single file

General

- Several smaller improvements and fixes

Version 3.4

Import

- Added support of feet & inches in imports

General

- Several smaller improvements and fixes

Version 3.3

Export

- Export to dxf files

General

- Several smaller improvements and fixes

Version 3.2

Optimization & cut options

- New cutting setting Grip allowing definition of minimum grip on both sides of each cut

General

- Several smaller improvements and fixes

Version 3.1

Optimization & cut options

- Improved optimization engine - higher overall yield and lower overall cost and waste
- Added several new 2-stage and 3-stage cutting types

See more in chapter Entering Settings for the Plan (Type of cutting).

General

- Creating multi-material plans from Assemblies
- Several smaller improvements and fixes

Version 3.0

The following describes changes against version 1.5

Technology

- MS Vista OS supported
- Firebird RDBMS used - more secure and reliable solution based on true SQL database for data protection like security, backup, crash recovery, etc.

GUI

- Graphical redesign and optimization of program for more user friendly look and feel
- Enhanced data grids for better navigation and data manipulation – new sorting and multi sorting features
- Enhanced filtering capabilities – possibility to define new improved filters for Plans, Materials, Assemblies, Storages, Sources, Parts, etc.

New features

- New Inventory management of sources, parts and remnants integrated with plans
- Assemblies
- Enhanced Group Optimization
- Duplicate plan

Reports

- New - filtering by date
- Export embedded into Reports
- New embedded report generator and editor for customization of reports
- Improved and extended labeling systems and report sets
- Possibility to define custom defined data views and statistics
- Batch reports

Imports

- Import of multi-material data with automated creation of plans
- Added import from MS Excel files, MS Access files, CSV format
- Added import from data sources (Oracle, MS SQL Server, MySQL, Firebird, etc.) via connection string
- Added "default" values and "multiply by" values when defining import
- Added filter allowing to filter imported data
- Improved import, sorting capabilities for imported data

Exports

- Export to CSV, MS Excel files, PDF, XML, Open Document Text, Open Document Spreadsheet
- Send by email feature
- Improved export to TXT, RTF, and HTML

Connectivity

- Distributed connectivity allowing various scenarios in different environments (local, LAN, WAN)
- Improved support for LAN – user management, logon security, etc.
- WAN optimization - application optimized for running in WAN environment

Technical Specifications

Sources (stock material):

- Max length and width of source: 100,000,000 (100 million)
- Max number of sources per plan: 1,000,000 (1 million)
- Max sum area of sources per plan: 100,000,000,000,000 (100 million million)
- Max number of source sizes per plan: 10,000 (10 thousand)

Parts (pieces to cut):

- Max length and width of part: 100,000,000 (100 million)
- Max number of parts per plan: 1,000,000 (1 million)
- Max sum area of parts per plan: 100,000,000,000,000 (100 million million)
- Max number of part sizes per plan: 10,000 (10 thousand)

Before You Try

System Requirements

CutLogic 2D has been designed to work with Microsoft Windows 2000, XP, Vista, Windows 7.

Minimum

- Intel Pentium® III 800 MHz or AMD Athlon 800 MHz
- 512 MB RAM (1024 MB RAM for Windows 7)
- Display 800x600; 65,536 colors
- 30 MB of free Hard Disk space
- Microsoft Windows 2000/XP/Vista/Windows 7
- Mouse

Recommended

- Pentium® 4 or AMD Athlon – 1400 Mhz or more
- 1054 MB RAM (2048 MB RAM for Windows 7)
- True Color Video Card (16,8 M colors) - 1024x768
- 50 MB of free Hard Disk space
- Microsoft Windows 2000/XP/Vista/Windows 7
- Mouse

Download and Installation

Download

You are welcome to download the trial version of our software at www.tmachines.com . You can freely download CutLogic 2D and run it on your computer for a trial period of 30 days. Click the download link in Download section. Downloading should start automatically.

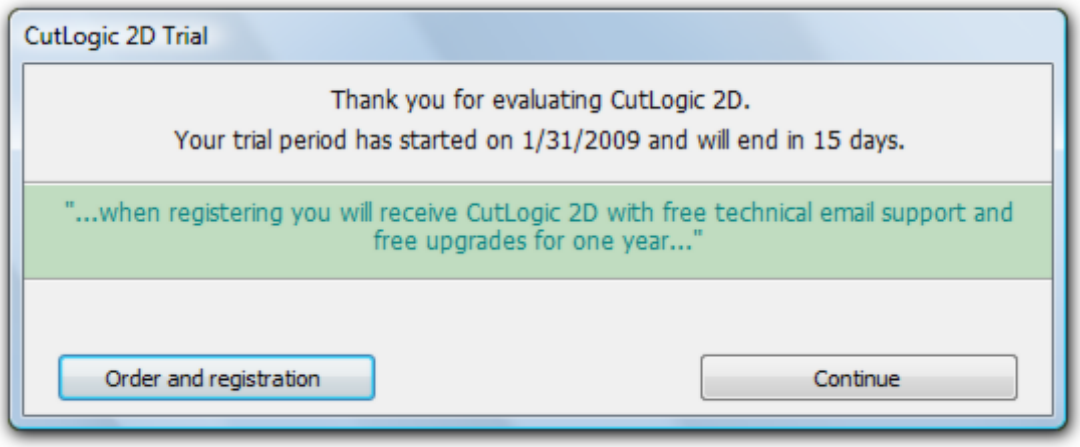
Installation

After the download is finished, go to the download folder and locate the file (i.e. setupcl2d.exe). Double-click the file to start the installation.

Trial Version

The CutLogic 2D is available in three editions: Standard, Professional and Enterprise. The most of features and functions in trial edition is unlocked on Enterprise level in order to demonstrate its capabilities; however some features are not available in trial edition. See chapter Editions comparison for details.

When launching CutLogic 2D in trial mode following dialog appears at start:


CutLogic 2D Trial
Thank you for evaluating CutLogic 2D.
Your trial period has started on 1/31/2009 and will end in 15 days.
"...when registering you will receive CutLogic 2D with free technical email support and free upgrades for one year..."
Order and registration
Continue

You can see how many days remain till the end of trial period and you can also order and register full version of the program. Click the button [Continue] to start program.

Before You Buy

Editions Comparison

	Trial Edition	Standard Edition	Professional Edition	Enterprise Edition
Program limitations				
Time limitation	30 days	Unlimited	Unlimited	Unlimited
Plan limitations [per one cutting plan]				
Max total number of all parts	Unlimited	1,000	10,000	Unlimited
Max number of unique parts (part sizes)	Unlimited	20	100	Unlimited
Network features				
LAN support			•	•
WAN support				•
Product features				
20 predefined reports	•	•	•	•
Fully customizable reports			•	•
Inventory Materials and Storages	•	•	•	•
Inventory Assemblies - copy to plan	•		•	•
Inventory Assemblies - copy to multiple plans				•
Types of cutting				
Unrestricted (non-guillotine)	•	•	•	•
Guillotine	•	•	•	•
3-stage relaxed	•	•	•	•
3-stage exact	•	•	•	•
2-stage relaxed	•	•	•	•
2-stage exact	•		•	•
2-stage simple (slitting & shearing)	•		•	•
Cutting settings and parameters				
Horizontal / vertical saw kerf (cut width)	•	•	•	•
Left / right / top / bottom trim cut	•	•	•	•
Minimum size of remnant (reusable rest)	•	•	•	•
Storage for new remnants	•	•	•	•
Remnants production control				•
Grip size	•			•
Cut table length - max length of hor. cuts	•			•
Cut table width - max length of ver. cuts	•			•
Group/order optimization	•			•
Minimum length of roll - cutting from rolls	•		•	•
Limit for number of partially used rolls	•			•
Limit for slitting knives settings per roll	•		•	•

Minimum layout repeat	•			•
Limit for number of horizontal knives / cuts	•			•
Limit for number of vertical knives / cuts	•			•
Small sources usage control			•	•
Import from				
Clipboard	•	•	•	•
TXT format	•	•	•	•
CSV format	•	•	•	•
MS Excel format	•		•	•
MS Access format				•
Connection string file				•
Export to				
DXF (AutoCAD) format			•	•
TXT format		•	•	•
CSV format		•	•	•
MS Excel format			•	•
PDF format				•
HTML format				•
XML format				•
RTF format				•
ODT format				•
ODS format				•

Ordering and Purchasing

Order the registered version of CutLogic 2D on-line through the World Wide Web at our site www.tmachines.com. Here you find our latest pricing information, instructions on how to order, and link for ordering online using a secure server, or by phone or fax. Our registrations are handled by a professional software registration company.

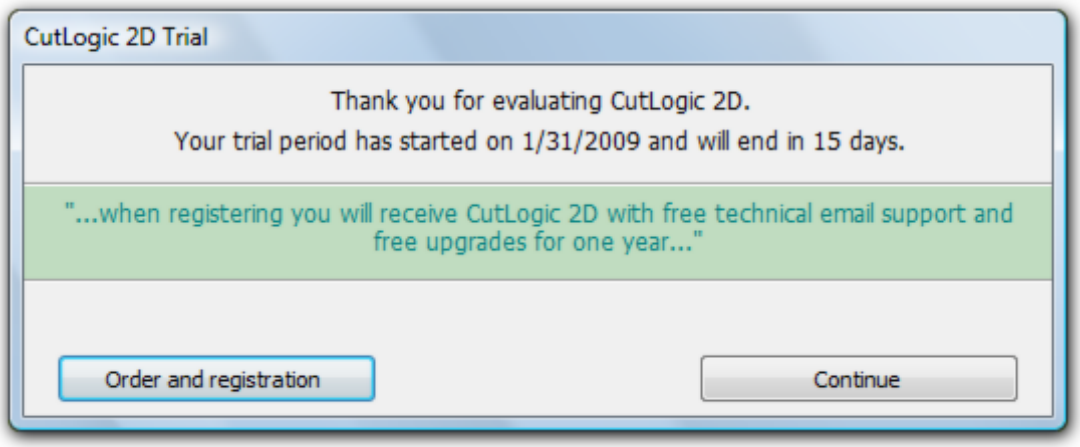
You can order CutLogic 2D securely online, or by fax, through share-it!, global e-commerce provider for software sales via Internet. You can use a credit card, debit card, bank transfer, check, cash, or purchase order / order on account, including billing in various currencies.

You can also order CutLogic 2D directly at sales@tmachines.com and pay via wire transfer to our bank account after getting an electronic invoice from us.

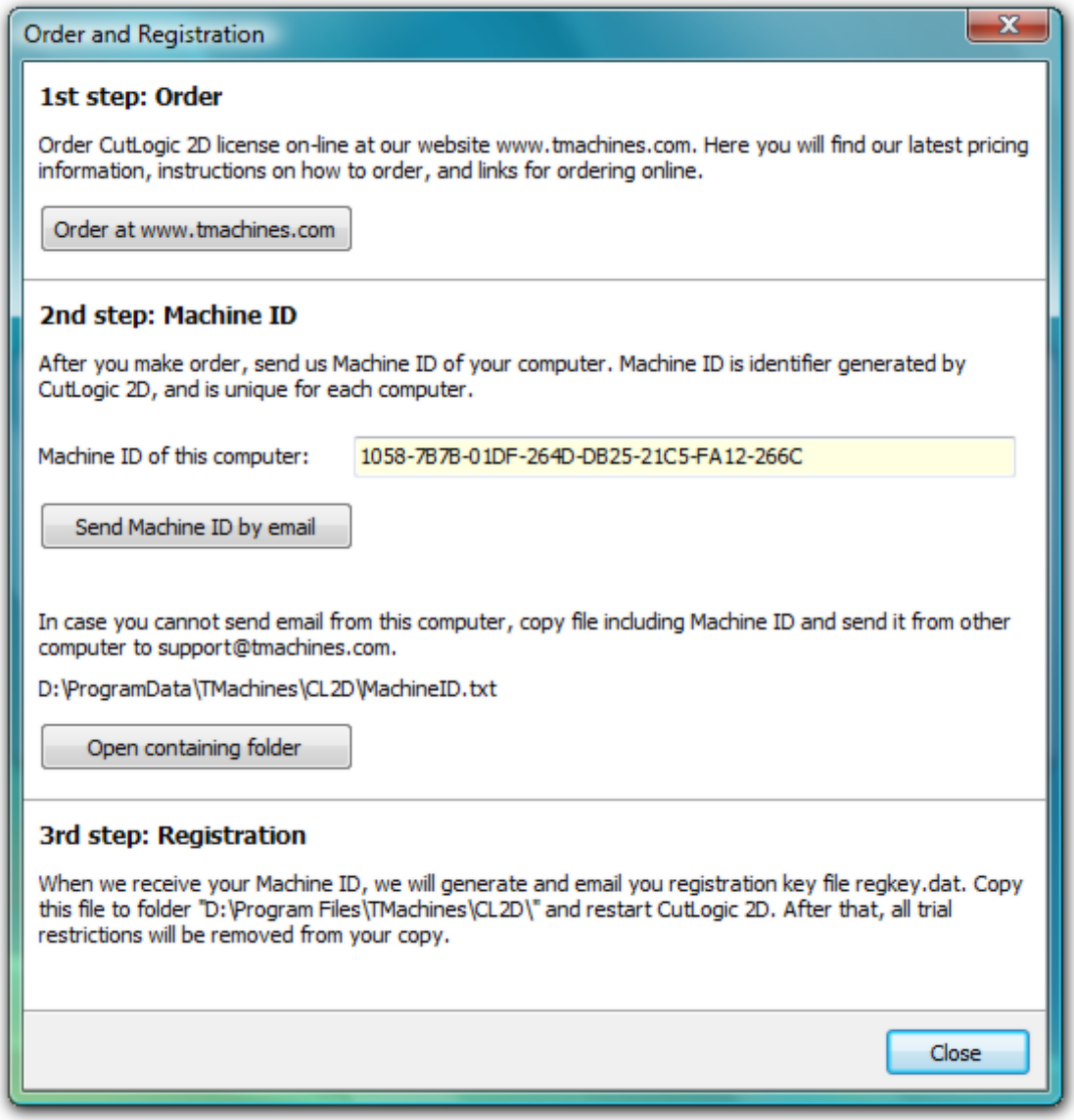
When purchasing CutLogic 2D, technical support by email and upgrades for the first year are included.

Registration

When you start CutLogic 2D, "CutLogic 2D Trial" dialog window displays your remaining trial period.


CutLogic 2D Trial
Thank you for evaluating CutLogic 2D.
Your trial period has started on 1/31/2009 and will end in 15 days.
"...when registering you will receive CutLogic 2D with free technical email support and free upgrades for one year..."
Order and registration
Continue

Click the [Order and registration] button and follow the instructions.


Order and Registration
1st step: Order
Order CutLogic 2D license on-line at our website www.tmachines.com. Here you will find our latest pricing information, instructions on how to order, and links for ordering online.
Order at www.tmachines.com
2nd step: Machine ID
After you make order, send us Machine ID of your computer. Machine ID is identifier generated by CutLogic 2D, and is unique for each computer.
Machine ID of this computer:
1058-7B7B-01DF-264D-DB25-21C5-FA12-266C
Send Machine ID by email
In case you cannot send email from this computer, copy file including Machine ID and send it from other computer to support@tmachines.com.
D:\ProgramData\TMachines\CL2D\MachineID.txt
Open containing folder
3rd step: Registration
When we receive your Machine ID, we will generate and email you registration key file regkey.dat. Copy this file to folder "D:\Program Files\TMachines\CL2D\" and restart CutLogic 2D. After that, all trial restrictions will be removed from your copy.
Close

NOTE! After we receive the license fee and Machine ID, we send you (usually in several hours) a registration key by e-mail with detailed instructions on how to use it. Email will be sent to the e-mail address that you stated in the order.

Program Overview

General

This chapter describes basic information about CutLogic 2D program good to know before you start to use the program.

The Basic Concepts and Terms

This chapter explains basic concepts and commonly used terms used in the program.

Commonly used terms

Program or CutLogic 2D means CutLogic 2D software application.

Optimization is process of finding the cutting plan with the optimized cutting layouts.

Plan represents definition of cutting plan.

Source represents material available for cutting; it is input into cutting plan.

Part represents piece of material required to be cut; it is input into cutting plan.

Remnant represents reusable rest of Source (also called reusable off-cut).

Scrap represents useless rest of Source.

View represents unique point of view or perspective on data.

Master View represents master part of View.

Detail View represents detailed part of View.

Master Tab is graphical control element (button) in the Program displaying given Master View.

Detail Tab is graphical control element (button) in the Program displaying given Detail View.

Report represents special layout displaying the data in printable format.

Filter represents set of conditions filtering data in given View or in given Report.

Material represents definition of unique material. One plan may contain only one Material.

Assembly represents unique definition of logically grouped Parts.

Storage represents definition of unique logical or physical storage or warehouse for Materials.

Basic concepts

All data in CutLogic 2D are stored in database in form of the database tables. Data from the database are displayed via Views. Views represent unique point of view on the data.

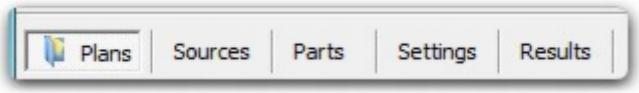
CutLogic 2D contains following Views:

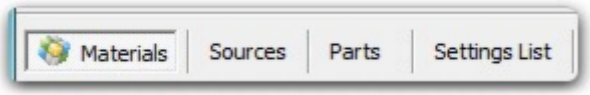
- Plans
- Materials
- Assemblies
- Storages

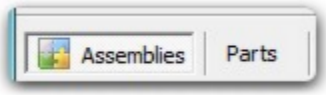
You can switch among these Views by clicking one of the Icons representing given view in the Tool Panel.

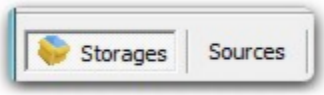
Every View consists of one Master View and one or more Detail Views. Master View is represented by Master Tab in the program, Detail View is represented by Detail Tab . Master Tab is first tab displayed in Tab Area from the left and contains small icon.

Active Views are displayed at Tab Area in following way:







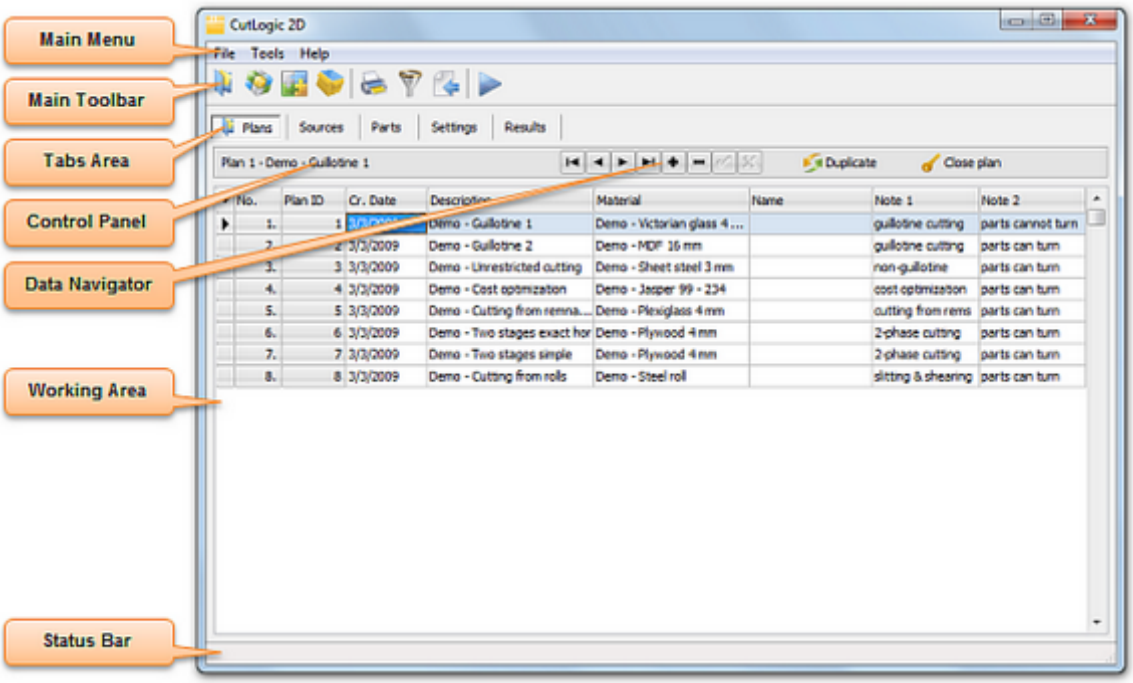


CutLogic 2D is unique in term of handling and displaying master–detail relations of data. If Detail View is active, following navigator is displayed in Tool Panel:

This navigator allows you to browse the records in related Master View while detailed information for active Detail View is displayed on the screen. This is very helpful feature allowing you better orientation among your data.

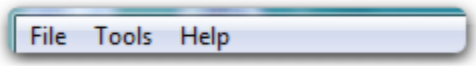
The Main Window

This chapter describes basic information about Graphical User Interface of CutLogic 2D.



The Main Window contains following areas:

Main Menu



This drop-down menu is basic control element for navigation and executions of logically grouped commands.

Main Toolbar

The Toolbar is a collection of buttons and other control elements providing quick access to commonly used commands.

Plans	[Ctrl+1]	Activates the Plans view allowing you to manage your plans, their sources, parts, settings and results
Materials	[Ctrl+2]	Activates the Materials view allowing you to manage your materials, their sources and parts

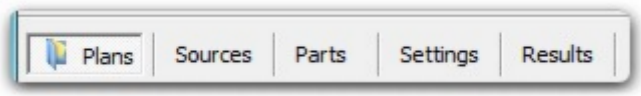
Assemblies	[Ctrl+3]	Activates the Assemblies view allowing you to manage your assemblies and their parts
Storages	[Ctrl+4]	Activates the Storages view allowing you to manage your storages and their sources
Reports	[Ctrl+P]	Displays the Reports form with list of available reports in new window
Filter	[Ctrl+F]	Displays the Filter definition form in new window
Import	[Ctrl+I]	Displays the Import form in new window
Start Optimization	[F3]	Starts calculation of optimal cutting plan for given actual plan
Stop Optimization	[ESC]	Stops calculation

Following data navigator serves for navigation in given Master View. This navigator is displayed only if other than Master Tab is chosen (active). This navigator allows you to browse the records in given Master View while detailed information from active Detail View is displayed in Working Area.

Function of the buttons of navigator is following:

- First record of given Master View
- Prior record of given Master View
- Next record of given Master View
- Last record of given Master View

Tabs Area



Tabs are graphical control elements representing Master and/or Detail Views. Tabs Area shows one Master and one or more Detail Tabs. Master Tab is the first tab from the left in Tabs Area and contains small graphical icon.

Control Panel

Control Panel displays basic information about active Master View and contains data navigator used for navigation in Working Area and optionally displays other control elements (buttons).

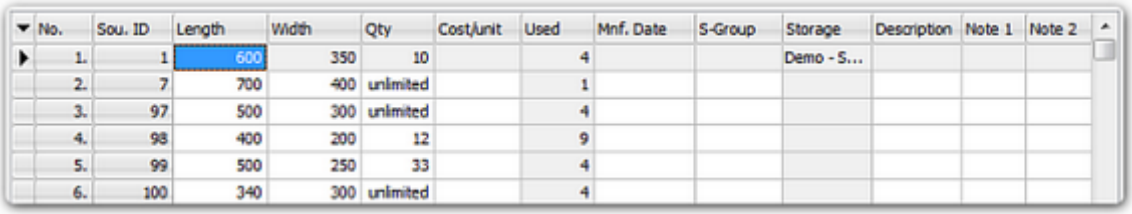
Data navigator

Data navigator serves for navigation and editing of data displayed in Working Area .

Function of the buttons of navigator is following:

- Sets the current record as the first record
- Sets the current record as the previous record
- Sets the current record as the next record
- Sets the current record as the last record
- Inserts a new record
- Deletes the current record
- Posts changes from the current record to the database
- Cancels changes made in the current record

Working Area

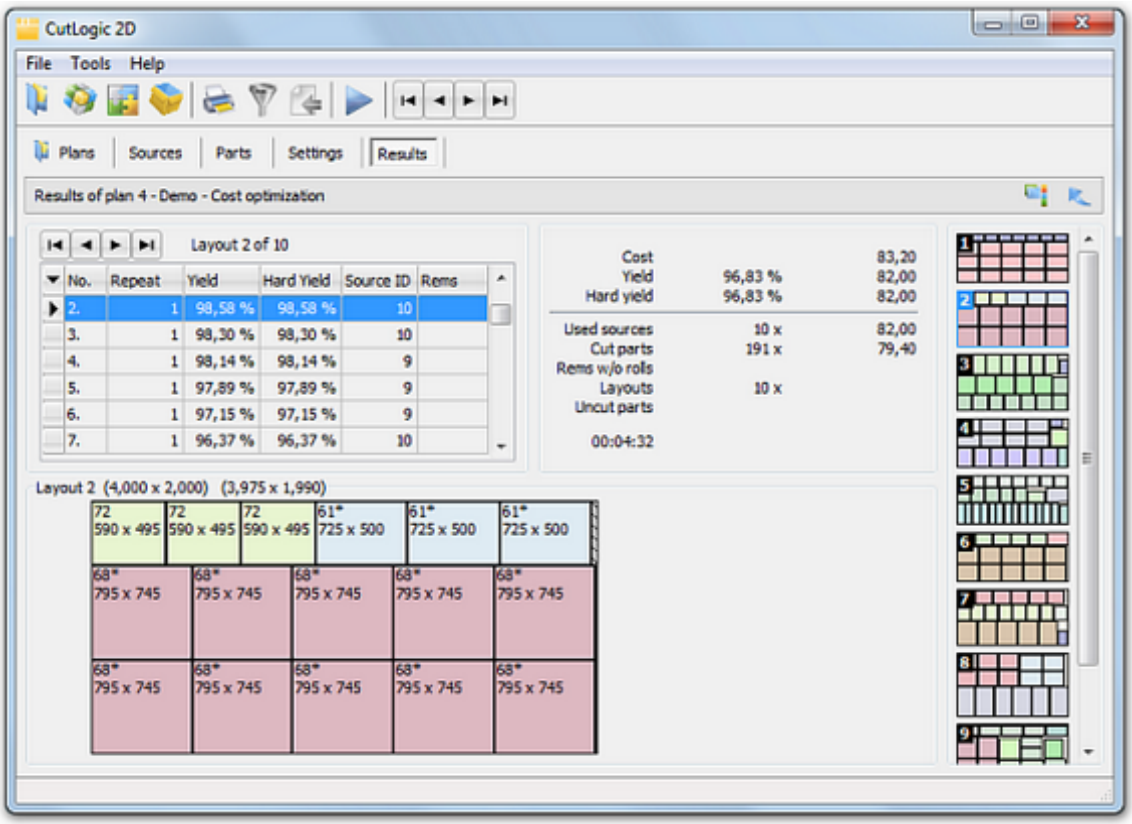


No.	Sou. ID	Length	Width	Qty	Cost/unit	Used	Mnf. Date	S-Group	Storage	Description	Note 1	Note 2
1.	1	600	350	10		4			Demo - S...			
2.	7	700	400	unlimited		1						
3.	97	500	300	unlimited		4						
4.	98	400	200	12		9						
5.	99	500	250	33		4						
6.	100	340	300	unlimited		4						

Working Area is the main part of the form, where you can manage your data like Plans, Materials, Storages and Assemblies. Data in Working Area are usually organized in rows (records) and columns (fields).

Light blue color represents active row.
Dark blue color represents active field within selected row.
Non editable fields are displayed with grey background.

Data in Working Area are, in some cases, organized and displayed in different format as, for example, in Results form:


CutLogic 2D
File Tools Help
Plans Sources Parts Settings Results
Results of plan 4 - Demo - Cost optimization
Layout 2 of 10
No. Repeat Yield Hard Yield Source ID Rems
2. 1 98,58 % 98,58 % 10
3. 1 98,30 % 98,30 % 10
4. 1 98,14 % 98,14 % 9
5. 1 97,89 % 97,89 % 9
6. 1 96,37 % 96,37 % 10
7. 1 96,37 % 96,37 % 10
Cost 83,20
Yield 96,83 % 82,00
Hard yield 96,83 % 82,00
Used sources 10 x 82,00
Cut parts 191 x 79,40
Rems w/o rolls
Layouts 10 x
Uncut parts
00:04:32
Layout 2 (4,000 x 2,000) (3,975 x 1,990)
72 590 x 495
61* 725 x 500
68* 795 x 745

Status Bar

Status Bar displays information related to element you point on by mouse (e.g. input line in cutting settings).

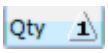
The Menus

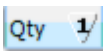
File		
Plans	[Ctrl+1]	Activates the Plans view allowing you to manage your plans, their sources, parts, settings and results.
Inventory		This contains following three sub-menu options...
Materials	[Ctrl+2]	Activates the Materials view allowing you to manage your materials, their sources and parts.
Assemblies	[Ctrl+3]	Activates the Assemblies view allowing you to manage your assemblies and their parts.
Storages	[Ctrl+4]	Activates the Storages view allowing you to manage your storages and their sources.
Start Optimization	[F3]	Starts calculation of optimal cutting plan for given actual plan.
Stop Optimization	[Esc]	Stops calculation.
Reports	[Ctrl+P]	Displays the Reports form in new window. Allows working with available reports like printing, previewing, editing and others.
Filter	[Ctrl+F]	Displays the Filter definition form in new window. Allows defining filter conditions and others.
Import...		This contains following four sub-menu options...
Import data from Excel, Access, csv, txt or connection file...	[Ctrl+I]	Displays the Import form in new window. Allows importing data.
Import data from clipboard	[Ctrl+J]	Allows importing data from clipboard.
Import plan from single file (to new plan)	[Ctrl+K]	Allows importing whole cutting plan from single data file. The data are imported to new created plan.
Import plan from single file (to current plan)	[Ctrl+L]	Allows importing whole cutting plan from single data file. The data are imported to currently selected plan.
Export...		This contains following three sub-menu options...
Export data to csv,	[Ctrl+P]	Displays the Reports form in new window.

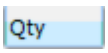
txt, Excel, pdf, rtf, html, etc...		Allows exporting data to csv, txt, xls, pdf, html, xml, rtf, odt or ods file.
Export plan to single file...	[Ctrl+E]	Allows exporting current plan to single data file.
Export cutting layouts to dxf files...		Opens file save dialog. Allows exporting cutting layouts to dxf file.
Exit		Quits the application.
Tools		
Calculator	[F8]	Displays the windows calculator.
Database		This contains following four sub-menu options...
Data		Opens the Data Administration on Data Tab in new window. Allows setup of backup and restore procedures.
Server		Opens the Data Administration on Server Tab in new window. Allows setup of server connection.
Users		Opens the Data Administration on Users Tab in new window. Allows managing the users.
Stats		Opens the Data Administration on Stats Tab in new window. Shows database statistics.
Order and Registration		Displays the information how to order and register the full version.
Options...	[Ctrl+O]	Displays the Options form with program options in new window.
Help		
CutLogic 2D Help	[F1]	Displays the Contents of this help file.
CutLogic 2D Online Help		Opens CutLogic 2D online help in your web browser.
Visit CutLogic 2D Web Site		Opens homepage of CutLogic 2D in your web browser.
About		Displays the information about the Product name and current version. It also contains the support link and our website address.

Sorting the Data

This feature helps you to manage your data displayed in Working Area. Click the label of given column by left mouse button to sort displayed records. Records will be sorted according to data values in selected Column.

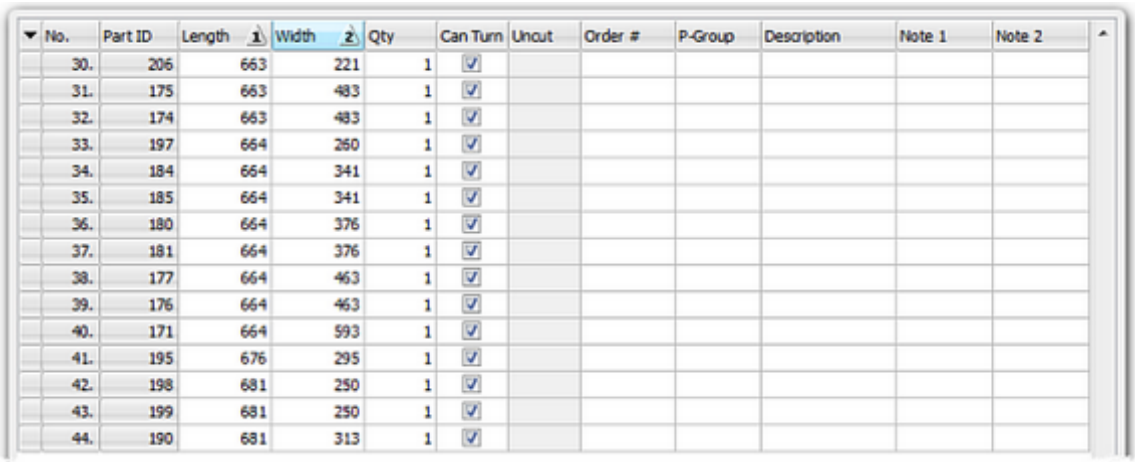
First click sorts data in ascending order. 

Second click sorts data in descending order. 

Third click cancels sorting in selected column. 

Program also allows defining of sorting over multiple columns.
Hold [Ctrl] button and click by left mouse button on the labels of given columns to activate sorting in more columns.

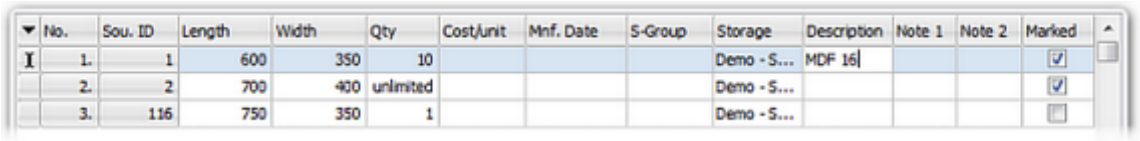
Following example shows sorting applied in "Length" and "Width" columns:



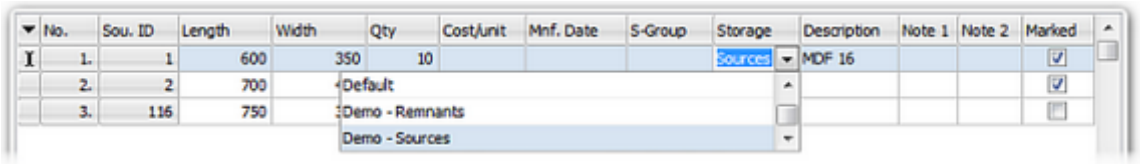
No.	Part ID	Length 1	Width 2	Qty	Can Turn	Uncut	Order #	P-Group	Description	Note 1	Note 2
30.	206	663	221	1	☑						
31.	175	663	483	1	☑						
32.	174	663	483	1	☑						
33.	197	664	260	1	☑						
34.	184	664	341	1	☑						
35.	185	664	341	1	☑						
36.	180	664	376	1	☑						
37.	181	664	376	1	☑						
38.	177	664	463	1	☑						
39.	176	664	463	1	☑						
40.	171	664	593	1	☑						
41.	195	676	295	1	☑						
42.	198	681	250	1	☑						
43.	199	681	250	1	☑						
44.	190	681	313	1	☑						

Editing the Data

You can use data navigator or mouse for navigation within the Working Area.
Single left click on active editable field or pressing [Enter] key switch selected field in Edit mode.
Edit mode allows you either to enter the data directly from the keyboard or to pass data from the clipboard. Some fields are restricted only by the length – the maximum number of characters.


No. Sou. ID Length Width Qty Cost/unit Mnf. Date S-Group Storage Description Note 1 Note 2 Marked
1. 1 600 350 10 Demo - S... MDF 16
2. 2 700 400 unlimited Demo - S...
3. 116 750 350 1 Demo - S...

Some editable fields are restricted by the list of predefined values. Enter the value for such field by choosing one from related pick list.


No. Sou. ID Length Width Qty Cost/unit Mnf. Date S-Group Storage Description Note 1 Note 2 Marked
1. 1 600 350 10 Sources MDF 16
2. 2 700
3. 116 750
Default
Demo - Remnants
Demo - Sources

If you leave edited row new values are automatically posted into database. You can also post changes into database by clicking the post edit button in the Data navigator.

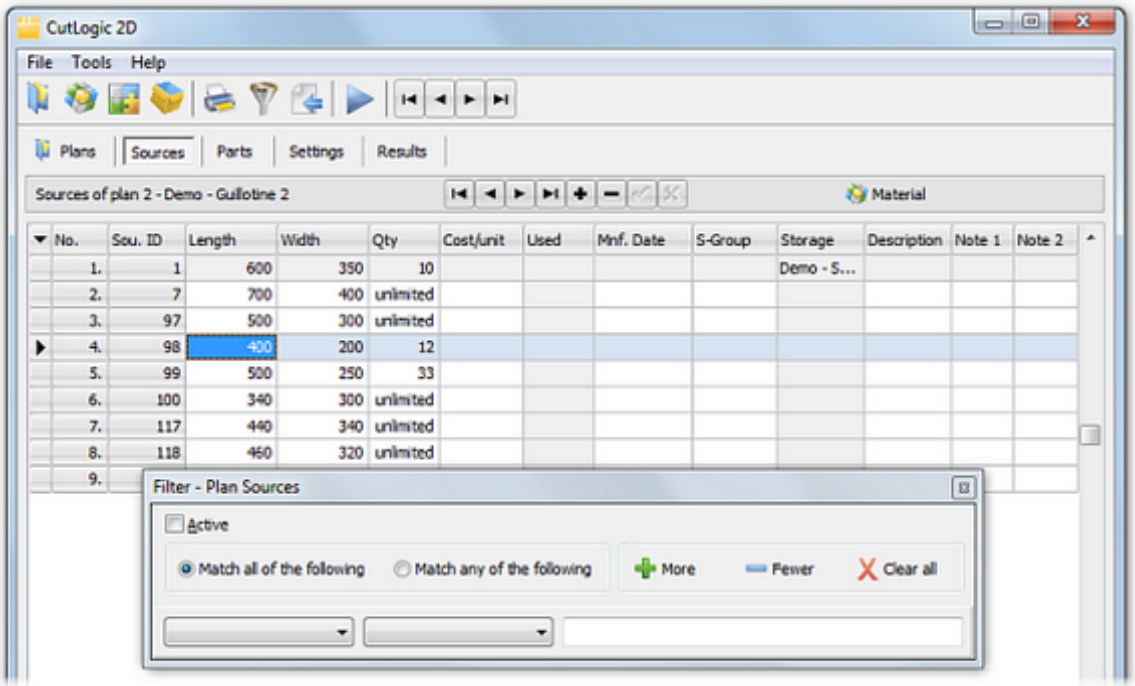
Filtering the Data

Filters represent powerful tool for data presentation. You can restrict displayed data by defining filtering conditions in Filter definition form. You can define one unique filter for each of following Views:

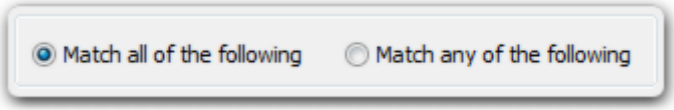
- Plans
- Plan Sources
- Plan Parts
- Materials
- Material Sources
- Material Parts
- Assemblies
- Assembly Parts
- Storages
- Storage Sources

Definition of Filter

By clicking the button in the Main Toolbar or by pressing keyboard shortcut [Ctrl+F] the Filter definition form opens in new window.


CutLogic 2D
File Tools Help
Plans Sources Parts Settings Results
Sources of plan 2 - Demo - Guillotine 2
Material
No. Sou. ID Length Width Qty Cost/unit Used Mnf. Date S-Group Storage Description Note 1 Note 2
1. 1 600 350 10 Demo - S...
2. 7 700 400 unlimited
3. 97 500 300 unlimited
4. 98 400 200 12
5. 99 500 250 33
6. 100 340 300 unlimited
7. 117 440 340 unlimited
8. 118 460 320 unlimited
9.
Filter - Plan Sources
Active
Match all of the following
Match any of the following
More
Fewer
Clear all

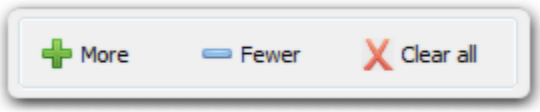
Filter definition form may contain more filtering conditions. Define logical relation among these conditions by clicking one of following radio buttons:



Match all of the following	Only data which fulfill all of the defined conditions will be displayed.
Match any of the following	Only data which fulfill at least one of the defined conditions will be displayed.

Adding and Deleting the Conditions

You can add and delete conditions of filter by clicking the chosen button.



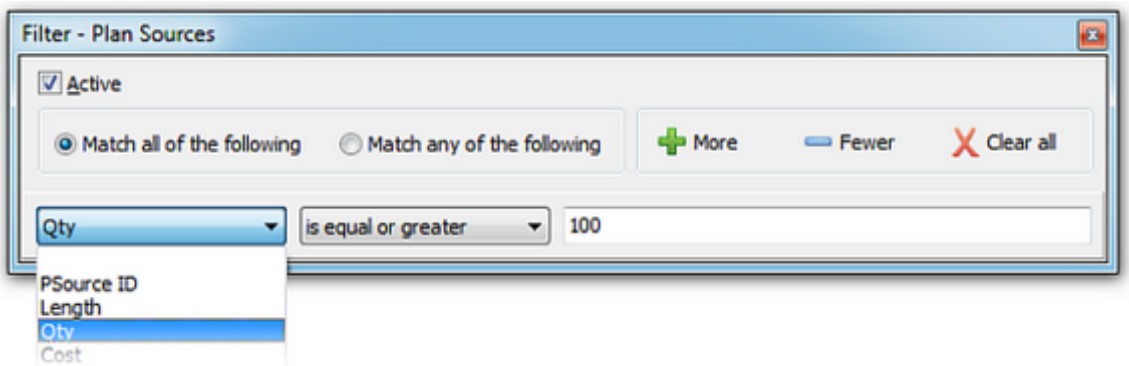
Functions of the buttons for manipulation with the filter are described as follows:

More	New condition will be added at the end of already defined conditions. It is possible to define 9 conditions at most.
Fewer	The last condition in the filter will be deleted.
Clear all	All defined conditions will be deleted.

Defining and Editing the Conditions

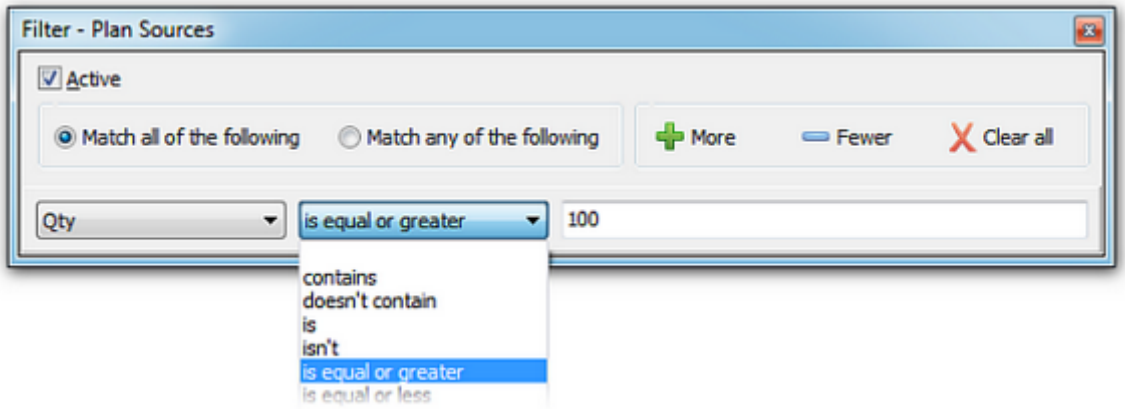
You need to choose a column, operation and define the value for each of conditions.

Select column from pre-defined list of available columns. You can define conditions even for columns not displayed in given View.



TIP! Select "Any Field" value from the list if you need to define condition for all available columns!

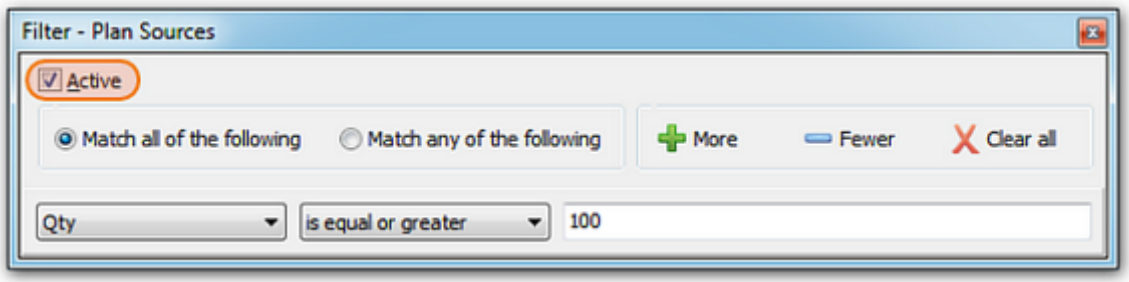
Select operation from pre-defined list of operations and enter the value for setting the filter.



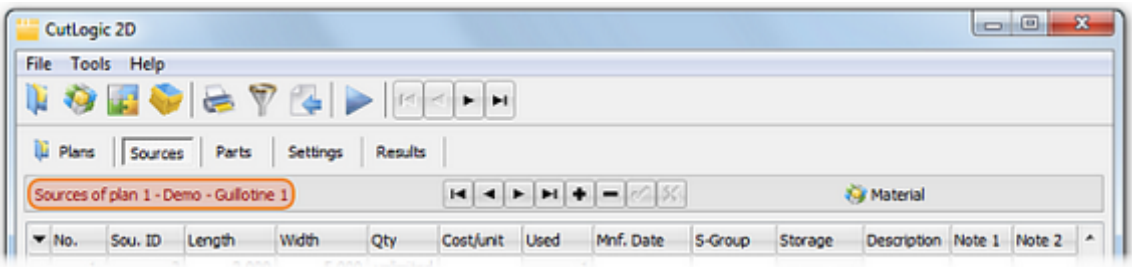
NOTE! Use numeric value for numeric columns like "Plan ID" or "Qty". For other columns any string can be used.

Activation and Deactivation of Filter

When all conditions of the filter are set, you can activate it. For activation click the check box "Active" in the Filter definition form.



The filter will display only the records which fulfill defined conditions.
Activation of filter is signalized by the red labeled information in Control panel.



Keyboard Shortcuts

Shortcuts for quick access to the program features:

[Tab]	Moves to the next field (cell)
[Shift+Tab]	Moves to the previous field (cell)
[Alt+Arrow Down]	Drops down list
[Ctrl+1]	Opens Plans
[Ctrl+2]	Opens Materials
[Ctrl+3]	Opens Assemblies
[Ctrl+4]	Opens Storages
[F3]	Starts calculation of optimal cutting plan
[Esc]	Stops calculation
[Ctrl+F]	Opens Filter definition form
[Ctrl+P]	Opens Reports form
[Ctrl+O]	Opens Options form
[Ctrl+I]	Opens Import form
[Ctrl+J]	Imports data from clipboard
[Ctrl+K]	Imports cutting plan from single data file (to new plan)
[Ctrl+L]	Imports cutting plan from single data file (to current plan)
[Ctrl+E]	Exports current plan to single data file
[F8]	Opens Windows calculator
[F1]	Opens Help

In database grids only:

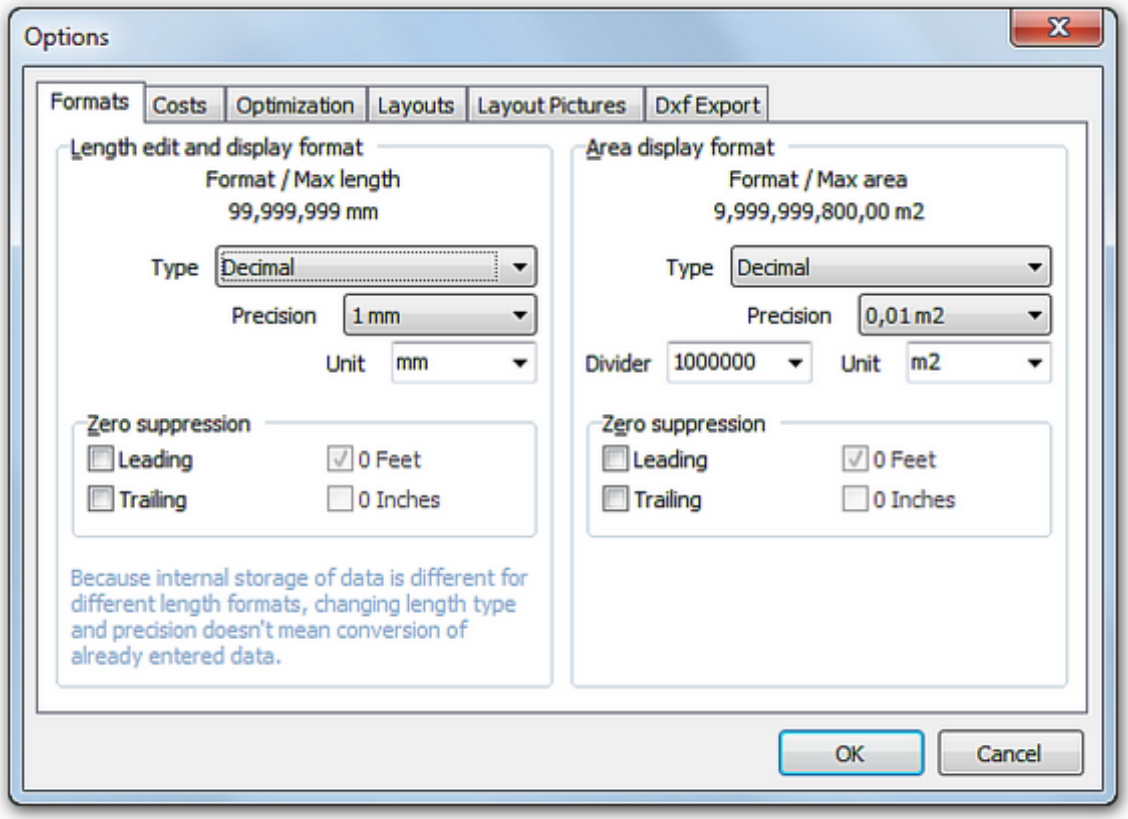
[F2]	Edits current field / Opens pick list for current field / Switches source qty 0 <-> unlimited
[Esc]	Cancels edit mode
[Ctrl+Del]	Deletes current record
[Ins]	Inserts new record
[Arrow Up]	Moves to the previous record
[Arrow Down]	Moves to the next record
[Page Up]	Moves to the previous page of records
[Page Down]	Moves to the next page of records
[Ctrl+Home]	Moves to the first record
[Ctrl+End]	Moves to the last record
[Enter/Return]	Switches between field's edit and view modes
[Arrow Left]	Moves to previous field (only if current field is in view mode)

	(same as [Shift+Tab])
[Arrow Right]	Moves to next field (only if current field is in view mode) (same as [Tab])
[Home]	Jumps to first (most left) field (only if current field is in view mode)
[End]	Jumps to last (most right) field (only if current field is in view mode)

Setting the Options

To work with Options, select the menu item *"Tools > Options..."* or use [Ctrl+O] keyboard shortcut.

In Options you can set the main parameters of the program. Correct representation and displaying of the data in the project depends on setting of some parameters like Type, Precision and Unit. That is the reason why we recommend to set these options immediately after the first start of the program or before entering of new cutting project.



Formats

In this option you can set Type, Precision and Unit for Length and Area formats of materials. Setting options for "Type" are given in following table:

Type	Decimal	e.g. 123,324 mm; 234,34 m; 142,2"
	Feet and decimal inches	e.g. 833' 3,99"
	Fractional	e.g. 324 31/32"
	Feet and fractional inches	e.g. 1302' 63/64"

In option "Precision", you can set the precision of entering the length format (decimal places, fractions) according to setting of the type.

In option "Unit", you can set the length unit of material (mm, cm, dm, m, '', ', in, ft).

This option is accessible only when the decimal or fractional type is set. When other types are set, this option is disabled. Defined Unit is shown in the length and width of material in the program and also in printing reports.

TIP! You can also set your own length unit by writing it to combo box or you don't need to fill it in at all. In this case the length unit won't be shown.

NOTE! Because for each length format internal storage of data is different, change of length type and precision doesn't convert already entered data. Therefore, it is necessary to consider this option carefully at the beginning of working with this program.

Zero suppression

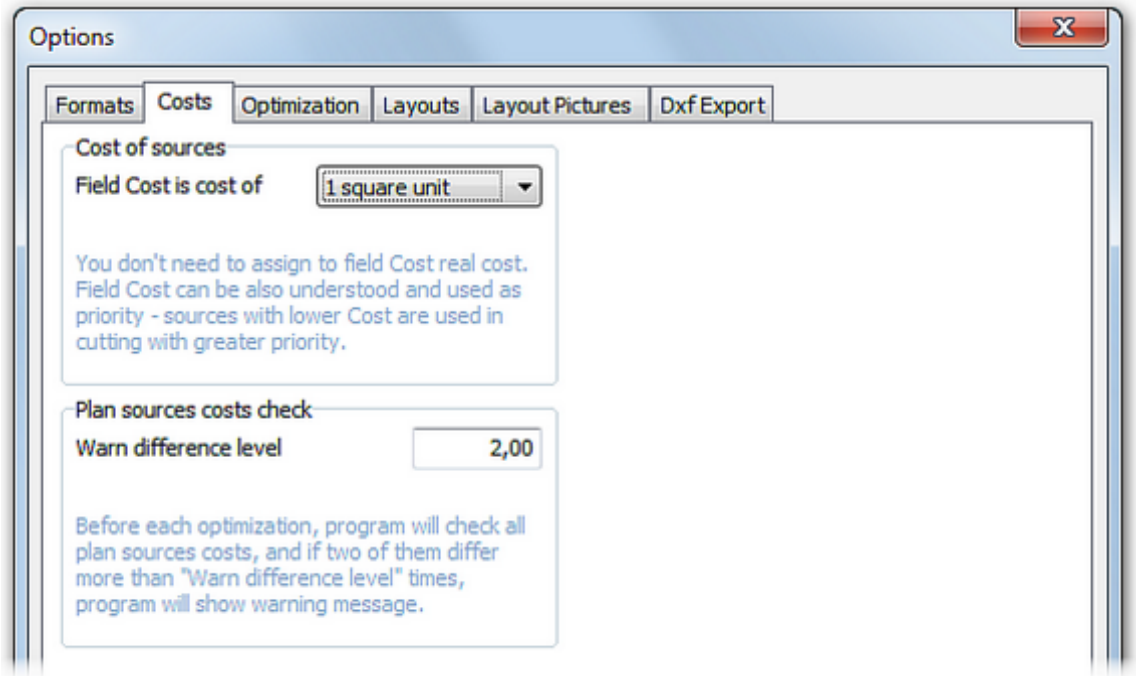
In this option you can set suppression of displaying zero values.

Leading	Suppresses displaying of leading zeros in decimal numbers.
Trailing	Suppresses displaying of trailing zeros in decimal numbers.
0 Feet	Suppresses displaying of 0 feet.
0 Inches	Suppresses displaying of 0 inches.

Costs

Cost of sources

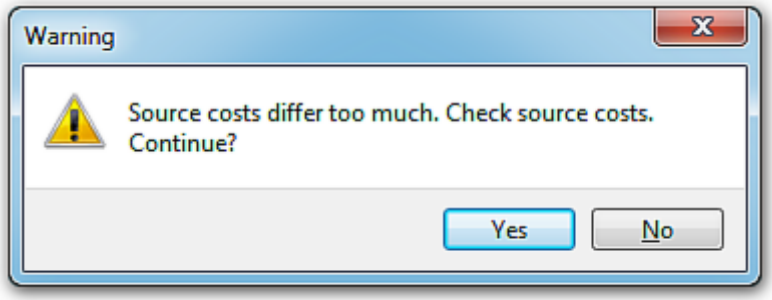
Costs of sources allows you to choose the most suitable costs metric for your sources.


Options
Formats
Costs
Optimization
Layouts
Layout Pictures
Dxf Export
Cost of sources
Field Cost is cost of
1 square unit
You don't need to assign to field Cost real cost. Field Cost can be also understood and used as priority - sources with lower Cost are used in cutting with greater priority.
Plan sources costs check
Warn difference level
2,00
Before each optimization, program will check all plan sources costs, and if two of them differ more than "Warn difference level" times, program will show warning message.

Cost metric	Description
1 square unit	Value in the field Cost represents cost of 1 square unit of source; square unit is defined by "Area display format" and "Divider" value
Whole source	Value in the field Cost represents cost of the whole source
1000 length units	Value in the field Cost represents cost of 1000 length units of source
100 length units	Value in the field Cost represents cost of 100 length units of source
10 length units	Value in the field Cost represents cost of 10 length units of source
12 length units	Value in the field Cost represents cost of 12 length units of source
1 length unit	Value in the field Cost represents cost of 1 length unit of source

Plan sources costs check

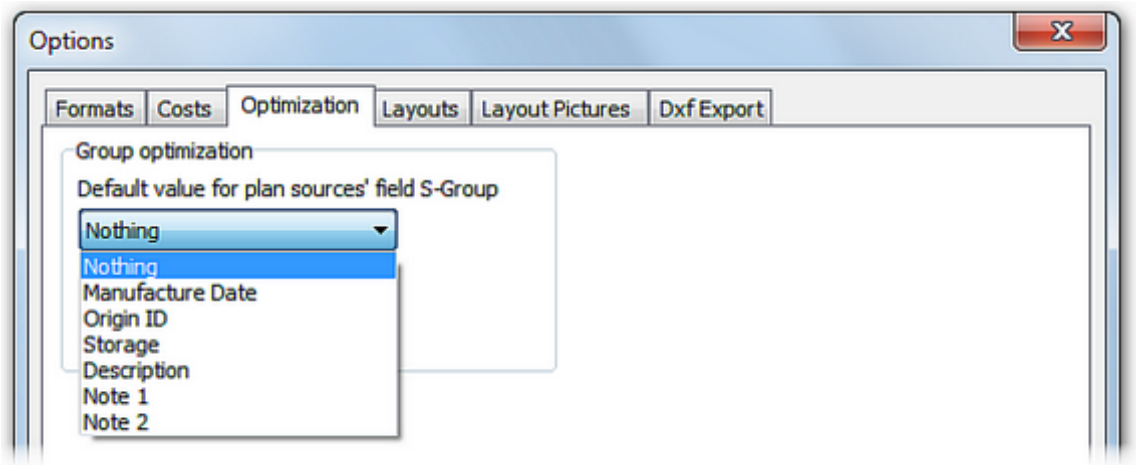
You can also define maximal ratio between the highest and the lowest cost of source within the plan. If this ratio is exceeded following warning message appears.



Optimization

Group optimization

Here you can set the columns used for automatic writing of its values into the S-Group field in the Plans Sources form. When Group optimization is turned on an identifier is used for grouping the sources by value written in the S-Group field.



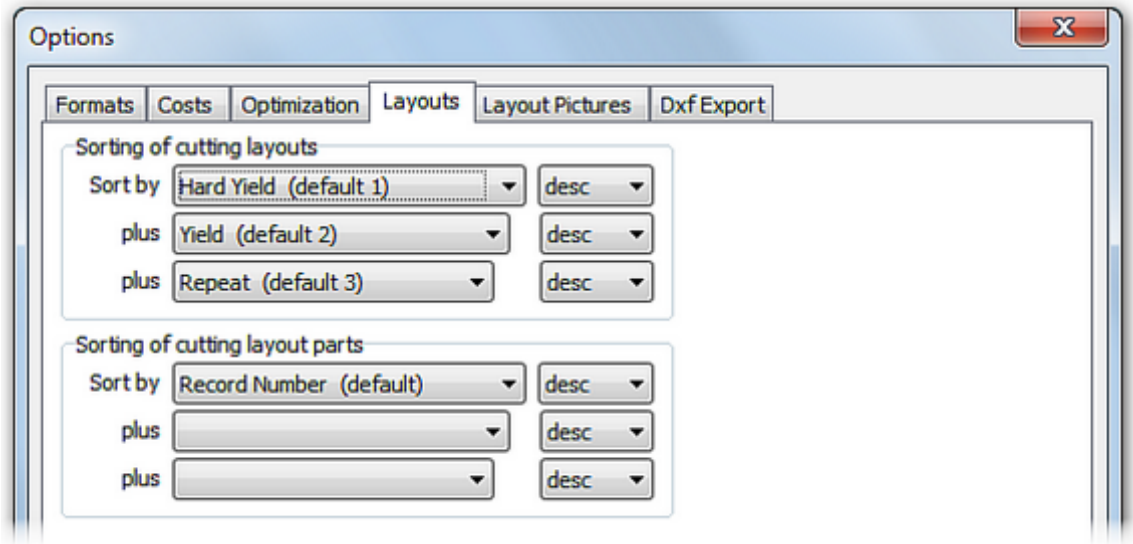
Default value	Description
Nothing	S-Group won't be automatically populated
Manufacture date	S-Group will be automatically populated by Manufacture date
Origin ID	S-Group will be automatically populated by Origin ID
Storage	S-Group will be automatically populated by Storage
Description	S-Group will be automatically populated by Description
Note 1	S-Group will be automatically populated by Note 1
Note 2	S-Group will be automatically populated by Note 2

NOTE! Material's Origin ID is a value, which represents the original material it was cut from. E.g. remnant 340 cut from remnant 233 which is cut from original material 123 will have Origin ID 123, this way each remnant can be traced to its original material.

See more in chapter Entering Setting for the Plan (What is Group optimization?).

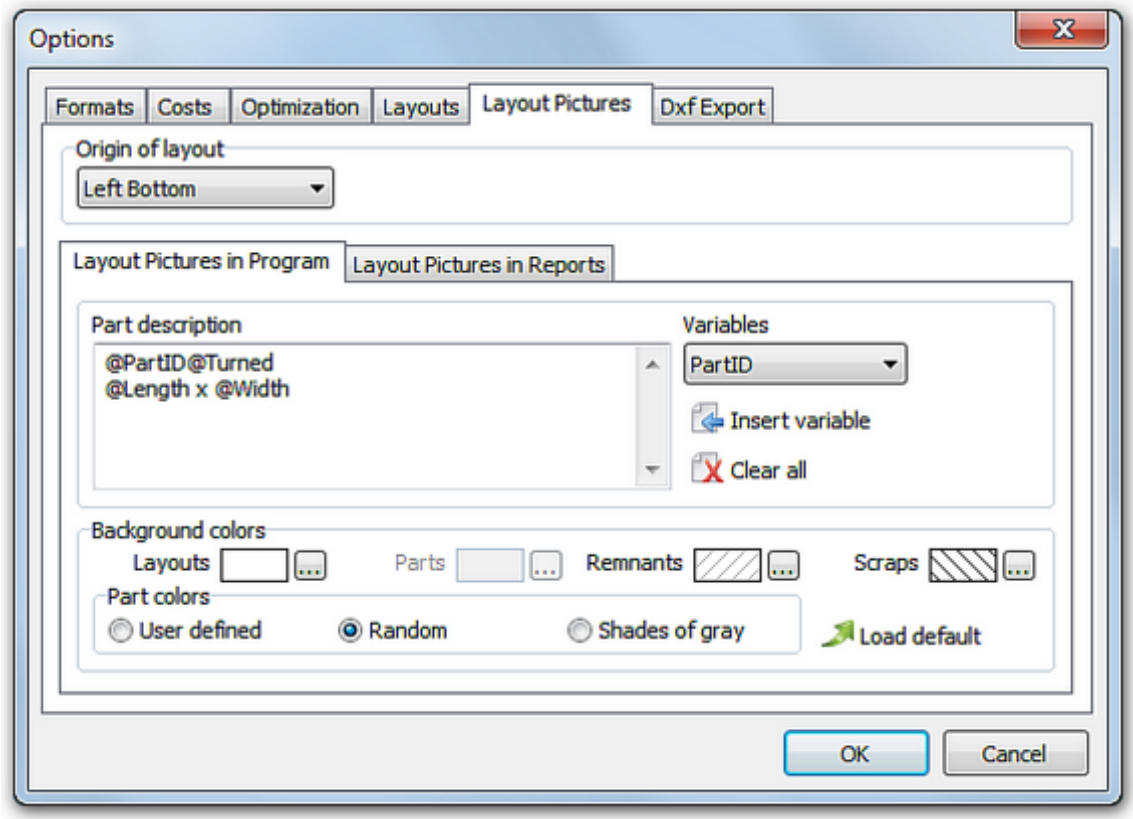
Layouts

In this option you can set sorting of cutting layouts and cutting layout parts. Each of this data can be sorted by three different fields in individual ascending or descending order.



Layout Pictures

In this option you can set some properties for the displaying of layout pictures in program and reports.



Origin of layout

Here you can set origin of the layout.

LeftTop	Layout starts from the left and top side.
LeftBottom	Layout starts from the left and bottom side.

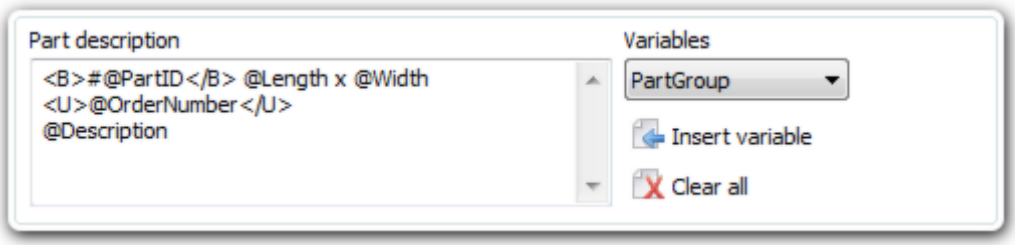
Layout Pictures in Program (Reports)

Here you can set expression for description of parts in pictures and background colors in results form or printing reports.

Part description

It is possible to enter any text, variables and tags which define font styles in script.

Following text describes how to enter expression for description of parts in layout pictures. It is possible to enter any text, variables and tags which define font styles in script.



Variables

Every variable starts with @ and it is possible to enter following variables:

@PartID	Part ID
@X1-coord	X1 Coordinate (Left)
@Y1-coord	Y1 Coordinate (Bottom / Top)*
@Length	Part Length
@Width	Part Width
@Turned	Indicates Rotation of Part
@OrderNumber	Order Number
@PartGroup	Part Group
@Description	Description
@Note-1	Note 1
@Note-2	Note 2

*According to setting of Origin of the layout in Options

Tags

<B> ... </B>	Bold
<I> ... </I>	Italic
<U> ... </U>	Underline

In the following table is an example of usage:

Input (Script you enter)	Output (Text you see in part)
<B>#@PartID</B> @Length x @Width <U>@OrderNumber</U> @Description	#22 726 x 400 16686394 Flat shelf

Background colors

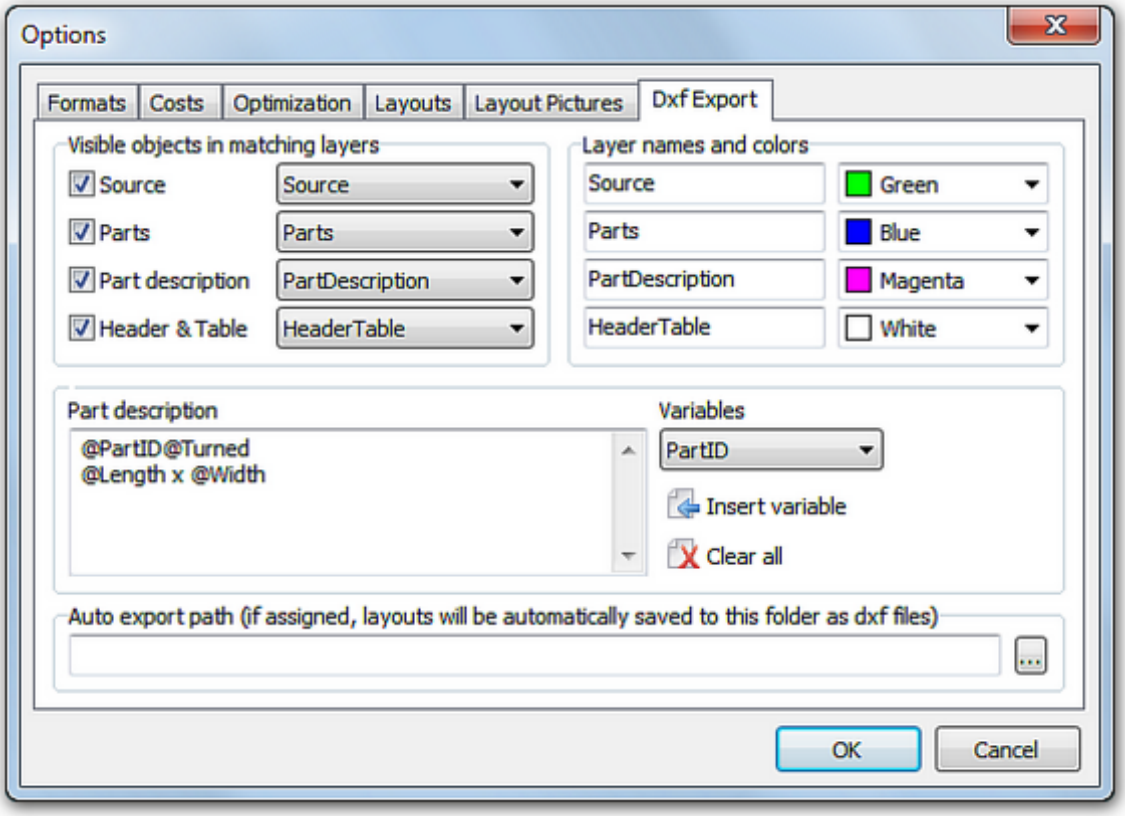
Here you can set individual background color for Layouts, Parts, Remnants and Scraps in program and reports.

Part colors	User defined	Color for parts will be defined by user in Background colors - Parts.
	Random	Random colors for parts will be generated by the program.
	Shades of gray	Shades of grey for parts will be generated by the program.

Click button [Load default] if you want to load default settings.

DXF Export

In this option you can set properties of dxf file which can be used to export cutting layouts in CAD exchange format (AutoCAD Drawing Exchange Format). System is designed to create one file for each layout.



Visible objects in matching layers

Here you can set which objects (Source, Parts, Part description, Header & Table) will be exported to dxf file. It is also possible to assign layer name to each object separately. It means, that object will be visible only in layer with appropriate layer name.

Layer names and colors

In this option you can define layer names and suitable colors.

Part description

If you want parts to include part description it is possible to define it here. Definition of part description for dxf file is the same as definition of part description for layout pictures in program (reports). The only difference is that you can't define tags here.

Auto export path

Program enables you to automatically save dxf files after optimization. If you want automatically save these files, you can set correct path here and after each optimization new dxf files will be created in this folder.

Working with Inventory

General

Inventory is a complement part of the program. It is used for inventorying and overall easy work with the program. You can keep here types of materials and their sources and you can also define the storages where the sources are actually placed. You can define Assemblies in order to save time and simplify working with plans.

There are two different ways how to utilize the Inventory.

- Using Inventory only for pre-defined or virtual materials and their sources and/or parts. If you want to use CutLogic 2D only for optimization purposes and if you keep real materials in different Inventory systems you can use CutLogic 2D Inventory only for pre-defined or virtual materials and/or for pre-defined or virtual sources and parts. When defining plan, you can copy pre-defined sources and/or pre-defined parts from Materials and save time needed for manual entry.
- Using Inventory in standard way. In such case all standard Inventory functions are utilized. All movements of physical material are tracked, you can run physical inventory, etc.

  See chapter Opening and Closing the Plan for related consequences.

Inventory consists of these three parts:

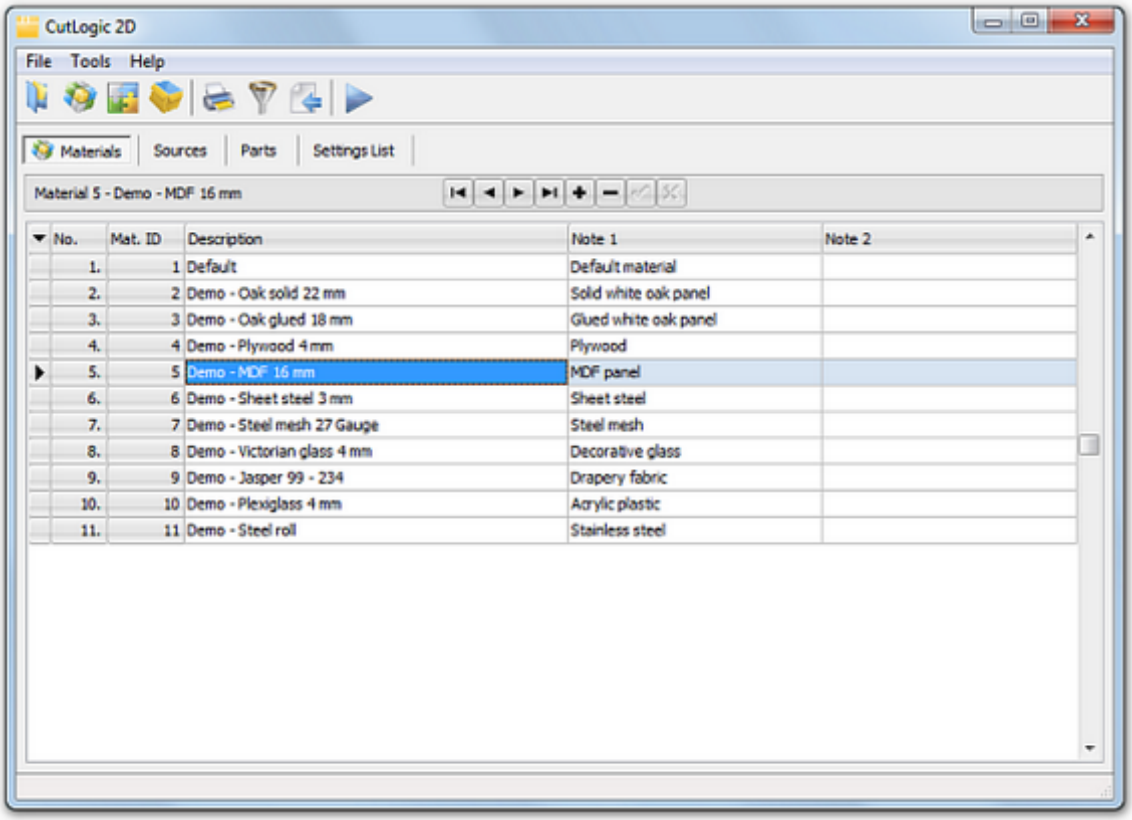
Materials

Assemblies

Storages

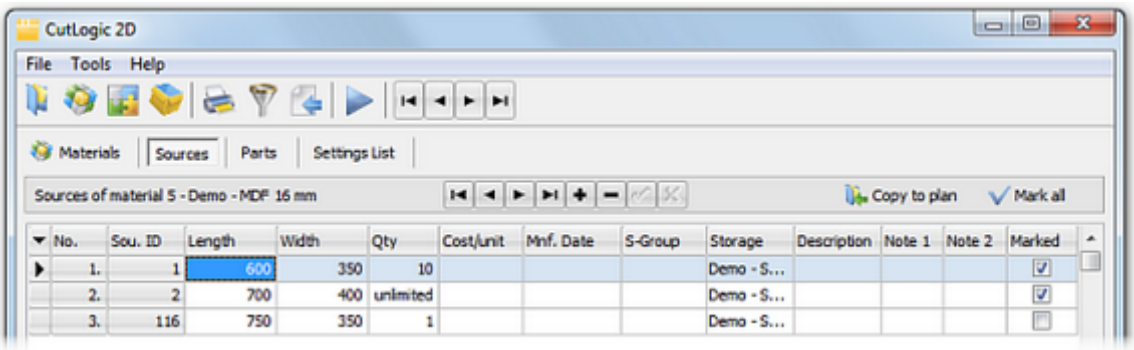
Working with Materials

To work with Materials, click the button in the Main Toolbar or select the menu item *"File > Inventory > Materials"* or use [Ctrl+2] keyboard shortcut.


CutLogic 2D
File Tools Help
Materials Sources Parts Settings List
Material 5 - Demo - MDF 16 mm
No. Mat. ID Description Note 1 Note 2
1. 1 Default Default material
2. 2 Demo - Oak solid 22 mm Solid white oak panel
3. 3 Demo - Oak glued 18 mm Glued white oak panel
4. 4 Demo - Plywood 4 mm Plywood
5. 5 Demo - MDF 16 mm MDF panel
6. 6 Demo - Sheet steel 3 mm Sheet steel
7. 7 Demo - Steel mesh 27 Gauge Steel mesh
8. 8 Demo - Victorian glass 4 mm Decorative glass
9. 9 Demo - Jasper 99 - 234 Drapery fabric
10. 10 Demo - Plexiglass 4 mm Acrylic plastic
11. 11 Demo - Steel roll Stainless steel

Click the Materials master tab to add new material and/or change descriptive information about existing materials. When new material is added you can continue in defining of sources, parts and cut settings.

Sources tab


CutLogic 2D
File Tools Help
Materials Sources Parts Settings List
Sources of material 5 - Demo - MDF 16 mm
Copy to plan
Mark all
No. Sou. ID Length Width Qty Cost/unit Mnf. Date S-Group Storage Description Note 1 Note 2 Marked
1. 1 600 350 10 Demo - S...
2. 2 700 400 unlimited Demo - S...
3. 116 750 350 1 Demo - S...

Click the Sources tab to define sources of actually set material. These sources are your real inventory and you can associate them to the concrete Storage through the field "Storage". If no Storage is defined, default storage will be used implicitly. You can enter

a short description of source to the field "Description". The field "Cost/unit" represents the cost of material. The fields "Length" and "Width" represents the length and width of the source and the field "Qty" represents total number of available sources.

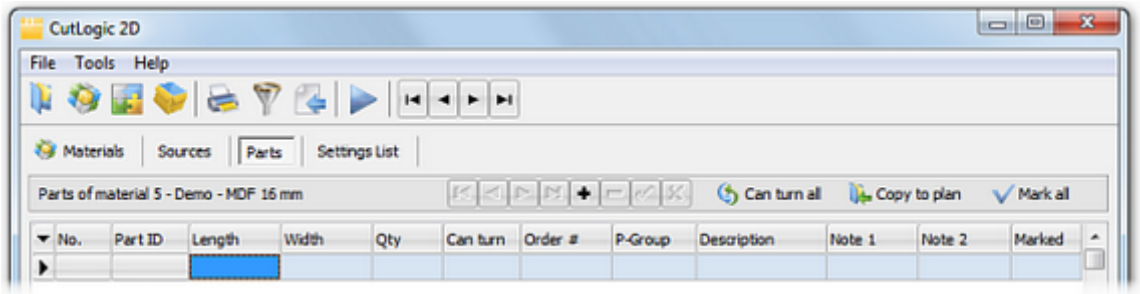
NOTE! Every line (record) in Sources represents unique micro batch with unique ID called "Origin ID". When defining a new source "Origin ID" is automatically set by program and is equal to "Source ID" displayed in Working area. All parts and remnants being cut from this micro batch share the same "Origin ID". It is extremely useful for tracking purposes of given material from original source through sub-sources or remnants to final parts. "Origin ID" is not displayed in the program, however it can be utilized in filters and reports.

It is possible to import sources of materials from any file with any structure or from clipboard.

NOTE! Sources which are defined in Materials are your real inventory. When you define and use them, you get a transparent overview of movement of materials and overall inventory in storages.

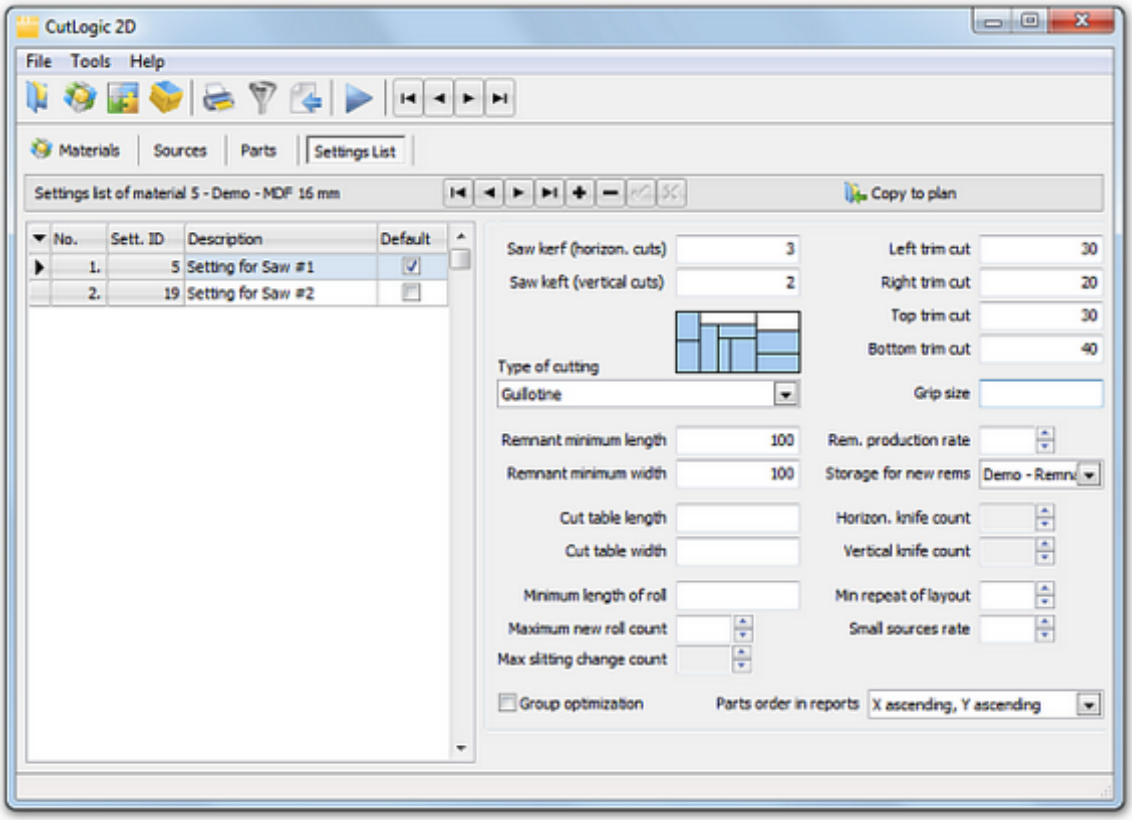
IMPORTANT! Sources with unlimited "Qty" represent pre-defined or virtual ones! Such sources are not part of your real inventory!

Parts tab



Click the Parts tab to define parts for given material. Defining of parts in Materials can be useful in cases when these predefined parts are frequently used in plans, so that copying these parts from Materials may save time and simplify preparation of new cutting plan.

Settings List tab

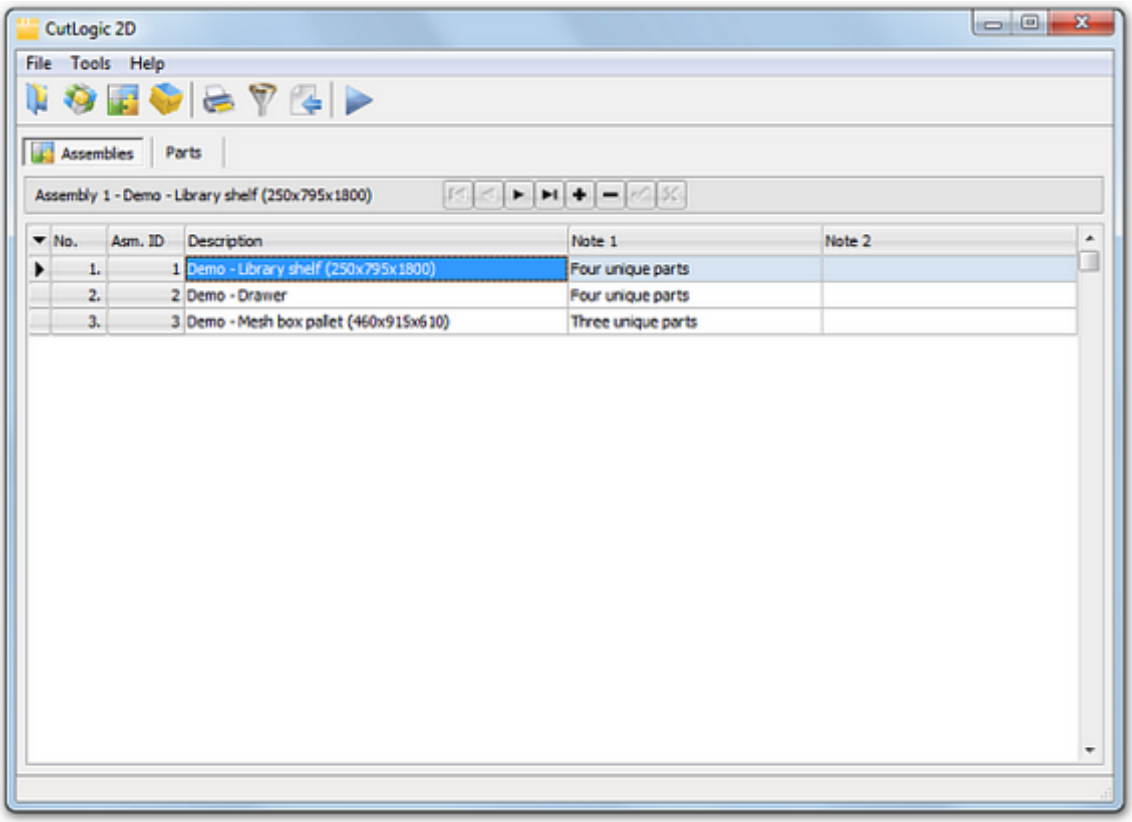


Settings list tab allows you to define list of pre-defined plan settings for given material. See more in chapter Entering Setting for the Plan.

Working with Assemblies

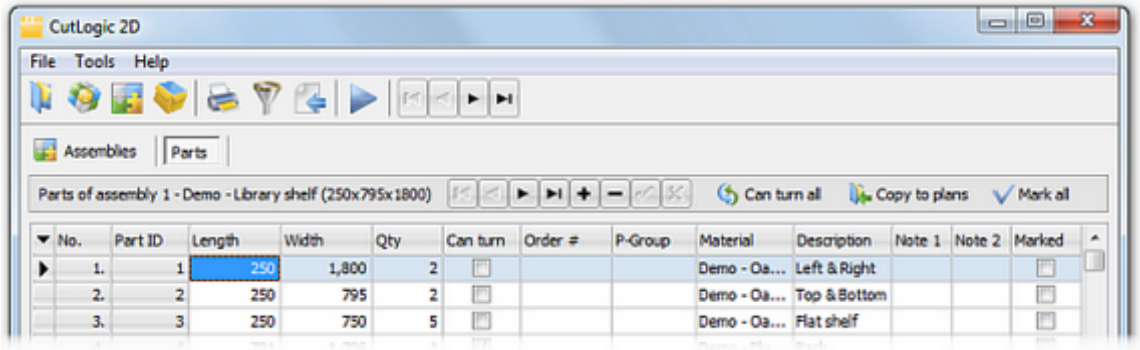
Working with Assemblies allows you to define assemblies (products) and their parts. When defining plan, this functionality allows you to copy entire assemblies instead of their parts into given plan. It brings simplification and streamlining to your work. See chapter Entering Multiple Plans from an Assembly for more information.

To work with Assemblies, click the button on the Main Toolbar or select the menu item *"File > Inventory > Assemblies"*, or use [Ctrl+3] keyboard shortcut.


CutLogic 2D
File Tools Help
Assemblies
Parts
Assembly 1 - Demo - Library shelf (250x795x1800)
No. Asm. ID Description Note 1 Note 2
1. 1 Demo - Library shelf (250x795x1800) Four unique parts
2. 2 Demo - Drawer Four unique parts
3. 3 Demo - Mesh box pallet (460x915x610) Three unique parts

Assemblies tab allows you either to define new assembly and related descriptive information or to edit existing ones.

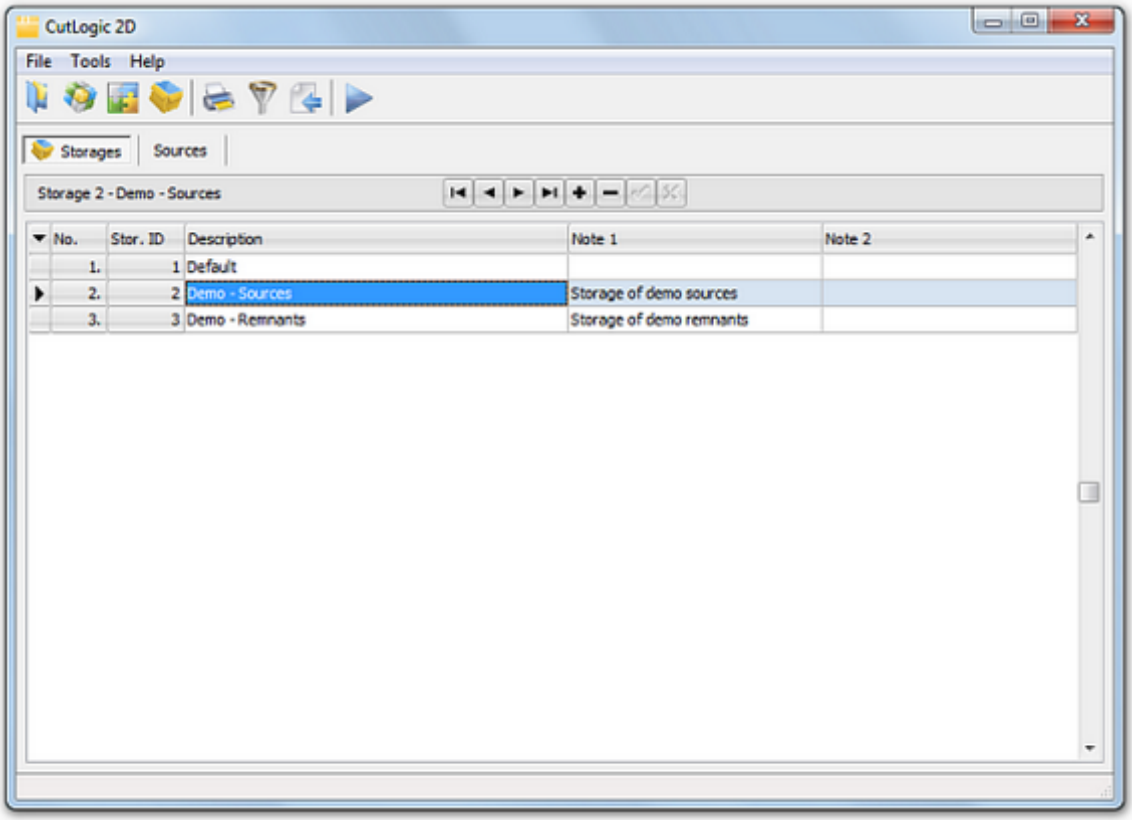
Parts tab


CutLogic 2D
File Tools Help
Assemblies
Parts
Parts of assembly 1 - Demo - Library shelf (250x795x1800)
Can turn all
Copy to plans
Mark all
No. Part ID Length Width Qty Can turn Order # P-Group Material Description Note 1 Note 2 Marked
1. 1 250 1,800 2 Demo - Oa... Left & Right
2. 2 250 795 2 Demo - Oa... Top & Bottom
3. 3 250 750 5 Demo - Oa... Flat shelf

Parts tab allows you to define parts for given assembly. Parts in assemblies represent bill of materials. This is new point of view on how to work with parts. It can be very useful in cases when you prepare cutting plan with many assemblies. This feature brings time saving and simplifies preparation of the new cutting plan.

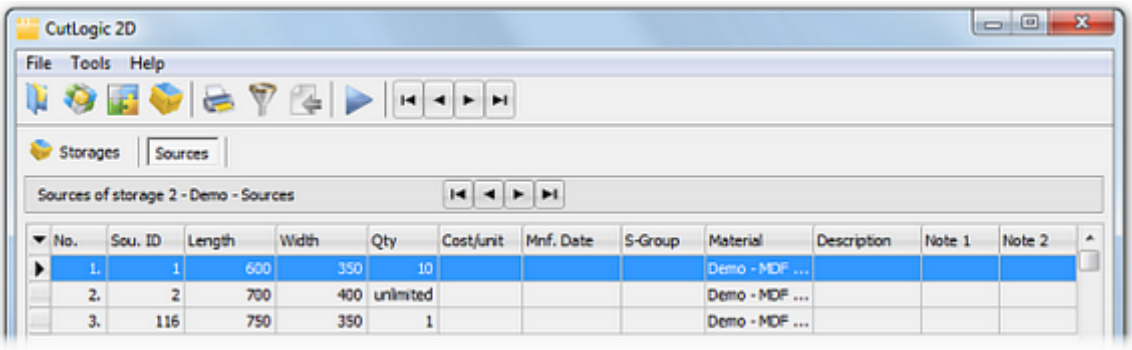
Working with Storages

To work with Storages, click the button in the Main Toolbar or select the menu item *"File > Inventory > Storages"* , or use [Ctrl+4] keyboard shortcut.


CutLogic 2D
File Tools Help
Storages
Sources
Storage 2 - Demo - Sources
No. Stor. ID Description Note 1 Note 2
1. 1 Default
2. 2 Demo - Sources Storage of demo sources
3. 3 Demo - Remnants Storage of demo remnants

Storages tab allows you to define your storages where your material is kept. Storage numbered 1 is pre-defined storage (Default) and it is not possible to delete it. You can change its Description for better customizing. If you don't define other storage when defining plan, pre-defined storage (Default) will be used.

Sources tab


CutLogic 2D
File Tools Help
Storages
Sources
Sources of storage 2 - Demo - Sources
No. Sou. ID Length Width Qty Cost/unit Mnf. Date S-Group Material Description Note 1 Note 2
1. 1 600 350 10 Demo - MDF ...
2. 2 700 400 unlimited Demo - MDF ...
3. 116 750 350 1 Demo - MDF ...

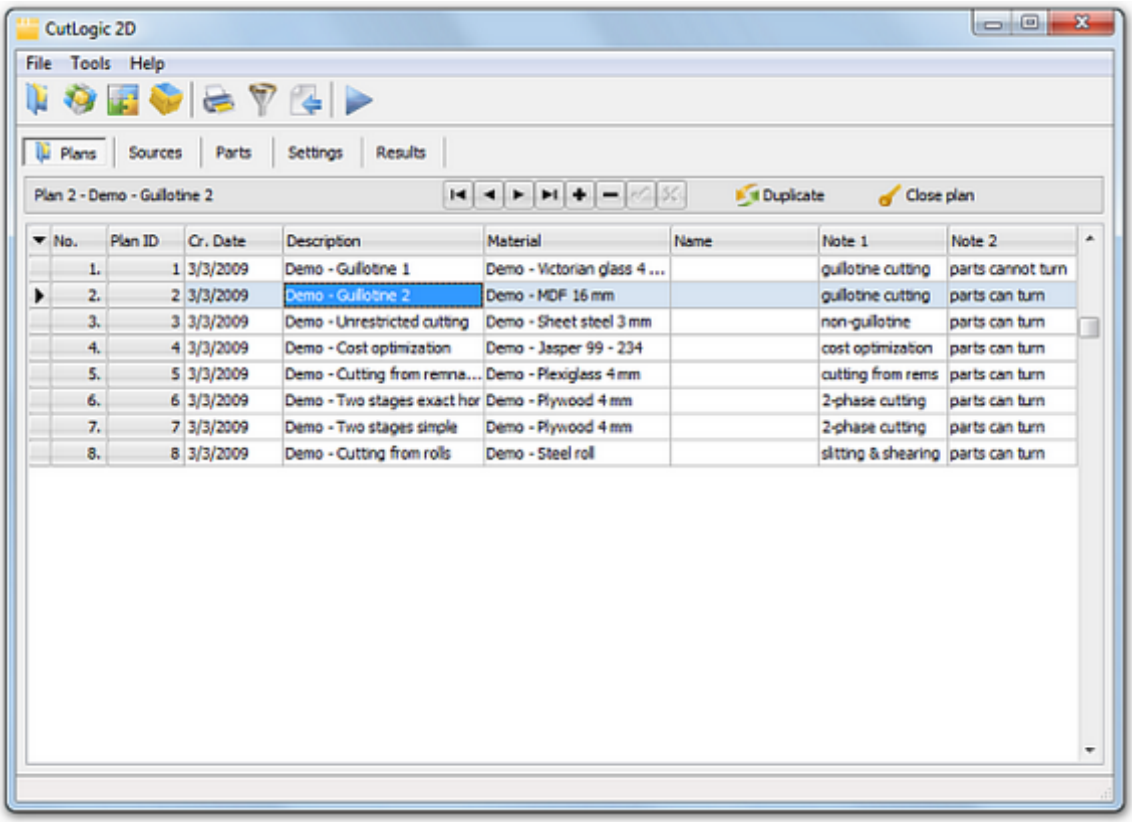
Sources tab allows you to see the list of materials stored at currently set storage. It is not possible to make any changes in this view; it is for information purpose only.

Working with Plans

General

To work with Plans, click the button in the Main Toolbar or select the menu item *"File > Plans"* or use [Ctrl+1] keyboard shortcut.

Plans are the main part of the program where you can set and manage cutting plans, sources of material, desired parts to cut and also perform the optimization of cutting layouts.

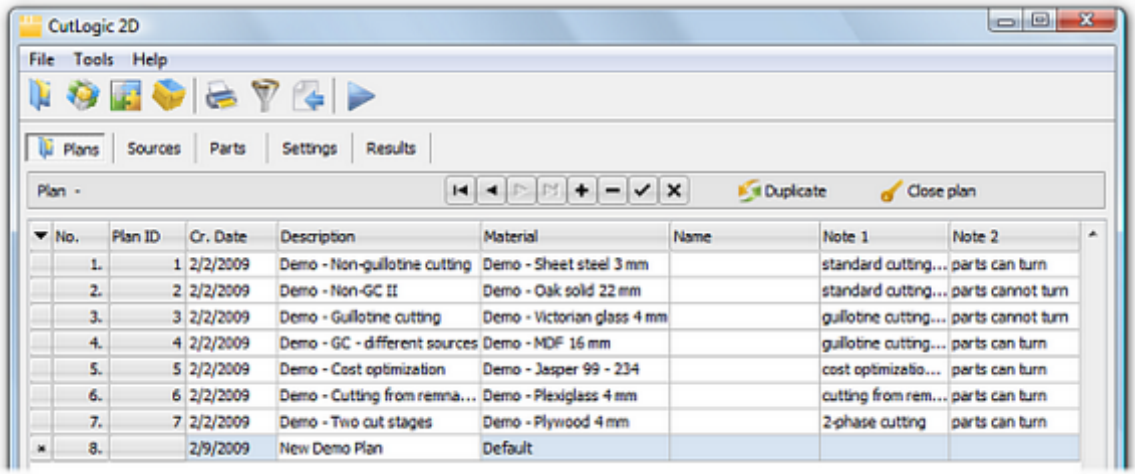

CutLogic 2D
File Tools Help
Plans Sources Parts Settings Results
Plan 2 - Demo - Guillotine 2
Duplicate
Close plan
No. Plan ID Cr. Date Description Material Name Note 1 Note 2
1. 1 3/3/2009 Demo - Guillotine 1 Demo - Victorian glass 4 ... guillotine cutting parts cannot turn
2. 2 3/3/2009 Demo - Guillotine 2 Demo - MDF 16 mm guillotine cutting parts can turn
3. 3 3/3/2009 Demo - Unrestricted cutting Demo - Sheet steel 3 mm non-guillotine parts can turn
4. 4 3/3/2009 Demo - Cost optimization Demo - Jasper 99 - 234 cost optimization parts can turn
5. 5 3/3/2009 Demo - Cutting from remna... Demo - Plexiglass 4 mm cutting from rems parts can turn
6. 6 3/3/2009 Demo - Two stages exact hor Demo - Plywood 4 mm 2-phase cutting parts can turn
7. 7 3/3/2009 Demo - Two stages simple Demo - Plywood 4 mm 2-phase cutting parts can turn
8. 8 3/3/2009 Demo - Cutting from rolls Demo - Steel roll slitting & shearing parts can turn

You can create new cutting plan in one of the following ways:

- Entering plan manually
- Entering plan (multiple plans) from Assemblies
- Duplication of existing plan
- Import of multi material parts

Adding a New Empty Plan

To add a new empty cutting plan, first click the Plans tab to open Plans form. Next, click the button in the Data navigator to add a new plan.



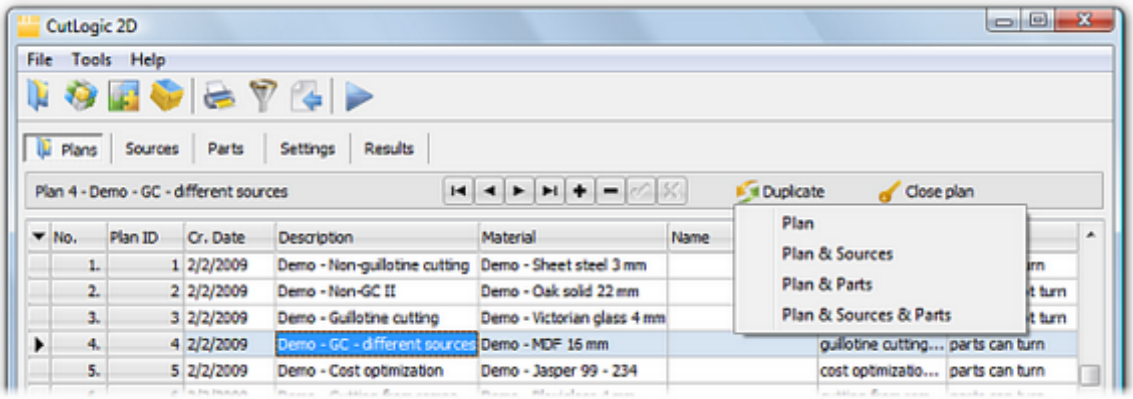
	No.	Plan ID	Cr. Date	Description	Material	Name	Note 1	Note 2
	1.	1	2/2/2009	Demo - Non-guillotine cutting	Demo - Sheet steel 3 mm		standard cutting...	parts can turn
	2.	2	2/2/2009	Demo - Non-GC II	Demo - Oak solid 22 mm		standard cutting...	parts cannot turn
	3.	3	2/2/2009	Demo - Guillotine cutting	Demo - Victorian glass 4 mm		guillotine cutting...	parts cannot turn
	4.	4	2/2/2009	Demo - GC - different sources	Demo - MDF 16 mm		guillotine cutting...	parts can turn
	5.	5	2/2/2009	Demo - Cost optimization	Demo - Jasper 99 - 234		cost optimizatio...	parts can turn
	6.	6	2/2/2009	Demo - Cutting from remna...	Demo - Plexiglass 4 mm		cutting from rem...	parts can turn
	7.	7	2/2/2009	Demo - Two cut stages	Demo - Plywood 4 mm		2-phase cutting	parts can turn
*	8.		2/9/2009	New Demo Plan	Default			

Next, enter "Description" of the plan. Move to the field "Material" and click left mouse button or press [F2] key to open drop-down list showing your Materials in the Inventory. Choose one of them and insert it to the plan. Field "Material" is mandatory. If you do not use Inventory features you can leave this field without editing and "Default" material is set automatically. "Default" material is predefined in the program and can not be deleted from Materials.

NOTE! You can define as many plans as you need for one material. However, one plan may contain only one material!

Duplication of Existing Cutting Plan

You can add new plan by duplicating the existing one. First, activate the plan you want to duplicate by clicking on it. Then click the button [Duplicate] in Control Panel and choose an option from the pick list as is shown in the following picture:


CutLogic 2D
File Tools Help
Plans Sources Parts Settings Results
Plan 4 - Demo - GC - different sources
Duplicate
Close plan
Plan
Plan & Sources
Plan & Parts
Plan & Sources & Parts
No. Plan ID Cr. Date Description Material Name
1. 1 2/2/2009 Demo - Non-guillotine cutting Demo - Sheet steel 3 mm
2. 2 2/2/2009 Demo - Non-GC II Demo - Oak solid 22 mm
3. 3 2/2/2009 Demo - Guillotine cutting Demo - Victorian glass 4 mm
4. 4 2/2/2009 Demo - GC - different sources Demo - MDF 16 mm guillotine cutting... parts can turn
5. 5 2/2/2009 Demo - Cost optimization Demo - Jasper 99 - 234 cost optimizatio... parts can turn

- Choice Plan will copy only related data from Plans tab and also defined parameters from Settings tab of selected plan into a new plan.
- Choice Plan & Sources will copy related data from Plans tab and defined parameters from Settings tab and all sources defined in Sources tab of selected plan into a new plan.
- Choice Plan & Parts will copy related data from Plans tab and defined parameters from Settings tab and all parts defined in Parts tab of selected plan into a new plan.
- Choice Plan & Sources & Parts will copy all related data from selected plan into a new plan.

This feature allows you to copy all section or only selected sections of given plan into new one. It is useful in "Multi plans", where an order consists of more plans with different materials.

Entering Sources for the Plan

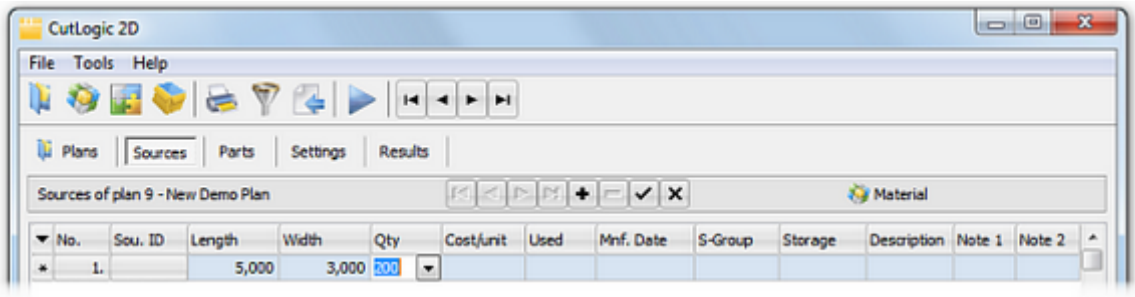
When general information about the plan is entered, you can start to enter the sources, one of mandatory input for the optimization.

You can enter sources in one of the following ways:

- Entering sources directly
- Copying stored or predefined sources from Materials
- Importing sources from external data files

Entering sources directly

Click the Sources tab to open Plan Sources form. To add new cutting source, click the button in the Data navigator.


CutLogic 2D
File Tools Help
Plans Sources Parts Settings Results
Sources of plan 9 - New Demo Plan
Material
No. Sou. ID Length Width Qty Cost/unit Used Mnf. Date S-Group Storage Description Note 1 Note 2
1. 5,000 3,000 200

Now you can enter data in the fields "Length", "Width", "Qty", "Cost/unit", "Mnf. Date", "S-Group", "Description", "Note 1" and "Note 2". "Length", "Width" and "Qty" are mandatory fields. First, enter length of the source to the field "Length". Next, enter width of the source to the field "Width". Next, enter the number of pieces available for cutting to the field "Qty". Fields "Used" and "Storage" are not editable.

TIP! How to use CutLogic 2D for estimation of optimal quantity of sources in the plan? If you know what parts you want to cut, what dimensions of sources are going to be used, but you do not know how many sources of given length and width you should order, just select "unlimited" value in the field "Qty". Program will automatically find optimal usage of that source during optimization. Consequently, you can order only the material you need for the plan and you don't need to keep material in storage.

Next, you can enter the unit cost of the source to the field "Cost/unit" according to pre-defined Costs format in Program options.

IMPORTANT! You can leave field "Cost/unit" blank – this is not mandatory field for optimization. CutLogic 2Doptimizer is based on cost optimization – it means the optimizer is trying to find "the cheapest" cutting plan (layouts). In the case when "Cost/unit" fields are blank or contain the same value for all sources within given plan – in other words if cost priority is not used – we talk about yield optimization which is a special case of cost optimization. In such case optimizer finds optimal cutting plan with the maximal yield and minimal physical waste. Because of the same cost of all sources it is also the cheapest cutting plan. In case when you set different costs for different sources the optimizer finds the cheapest cutting plan, which isn't necessarily the plan with maximal yield/minimal waste.

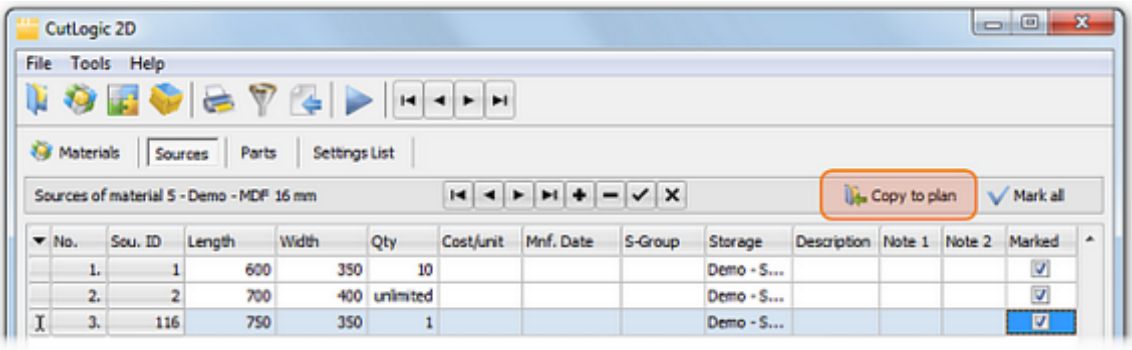
TIP! You don't need to assign the real cost to the "Cost/unit" field. "Cost/unit" field can be also understood and used as a priority – sources with lower cost are used in optimization process with greater priority.

Copying stored or predefined sources from Materials

The second way how to enter the sources to the plan is to load them from Materials.

CutLogic 2D
File Tools Help
Plans Sources Parts Settings Results
Sources of plan 9 - New Demo Plan
Material
No. Sou. ID Length Width Qty Cost/unit Used Mnf. Date S-Group Storage Description Note 1 Note 2

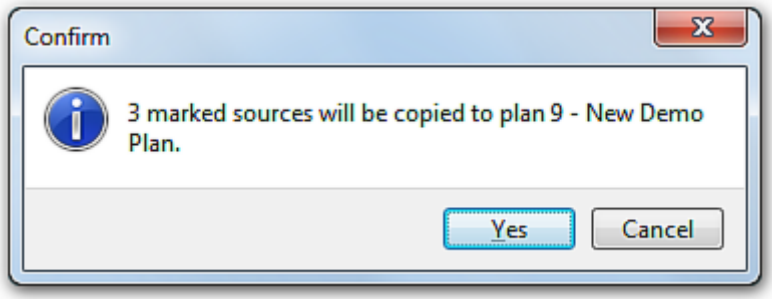
By clicking the button [Material], the Material Sources form with predefined sources opens.


CutLogic 2D
File Tools Help
Materials Sources Parts Settings List
Sources of material 5 - Demo - MDF 16 mm
Copy to plan
Mark all
No. Sou. ID Length Width Qty Cost/unit Mnf. Date S-Group Storage Description Note 1 Note 2 Marked
1. 1 600 350 10 Demo - S...
2. 2 700 400 unlimited Demo - S...
3. 116 750 350 1 Demo - S...

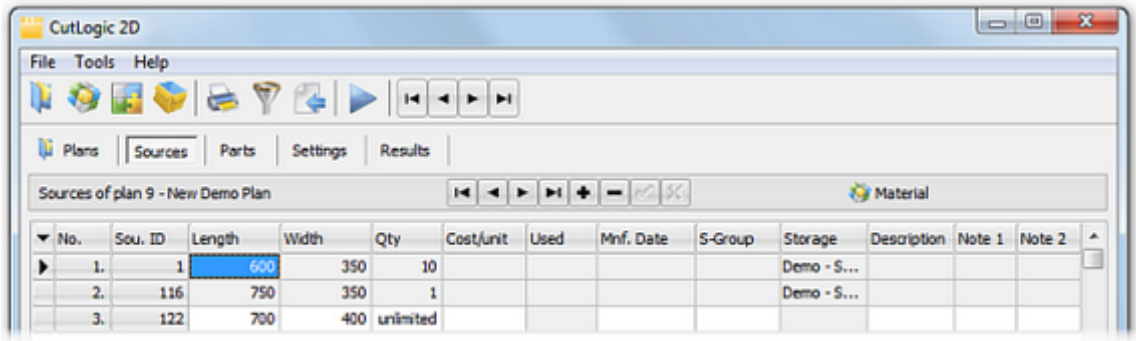
You can mark one or more sources and copy them to the plan by clicking the button [Copy to plan].

TIP! Click the button [Mark all] to mark all available sources.

After clicking the button [Copy to plan] following confirmation form appears:



After clicking the button [Yes] the sources are copied to the plan.


CutLogic 2D
File Tools Help
Plans Sources Parts Settings Results
Sources of plan 9 - New Demo Plan
Material
No. Sou. ID Length Width Qty Cost/unit Used Mnf. Date S-Group Storage Description Note 1 Note 2
1. 1 600 350 10 Demo - S...
2. 116 750 350 1 Demo - S...
3. 122 700 400 unlimited

IMPORTANT! Keep in mind that sources with defined quantity represent real sources of real Inventory and you can not edit them in this form, while sources with "unlimited" quantity represent predefined sources – templates. Such kind of source is virtual one and it can not be stored in Storages so that Storage field is blank. You can edit and change the same fields as in manual mode of entering the sources.

Importing sources from external data files

The third way how to enter the sources to the plan is to import them from the external data files.

It is possible to import sources from any of following structured files: TXT, CSV, MS Excel file, MS Access file, from clipboard or from an external database via connection string definition.

You can import sources from external source by clicking the menu "*File* > *Import*" or by pressing [Ctrl+I] keyboard shortcut. Read more about import in chapter Import.

TIP! It is possible to combine all above mentioned ways of entering the sources, however keep in mind all consequences especially for Inventory management!

Field "Storage" represents physical store where the sources used in the plan are stored. (Applicable only for stored sources loaded from Inventory).
The field "Used" informs about number of sources planned by optimizer to be used for cutting.

Entering Parts for the Plan

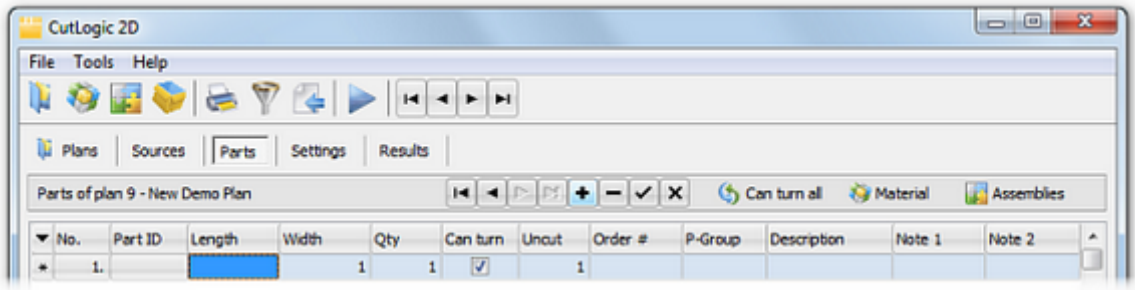
When all sources are entered, you can start to enter parts you want to cut.

You can enter parts in one of the following ways:

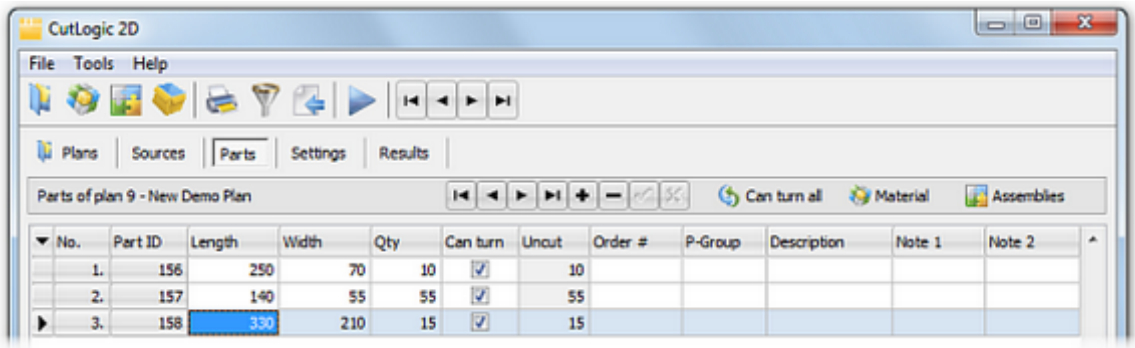
- Entering parts directly
- Copying predefined parts from Materials
- Copying predefined parts from Assemblies
- Importing parts from external data source

Entering parts directly

Click the Parts tab to open Plan Parts form. To add a new cutting part, click the button in the Data navigator.

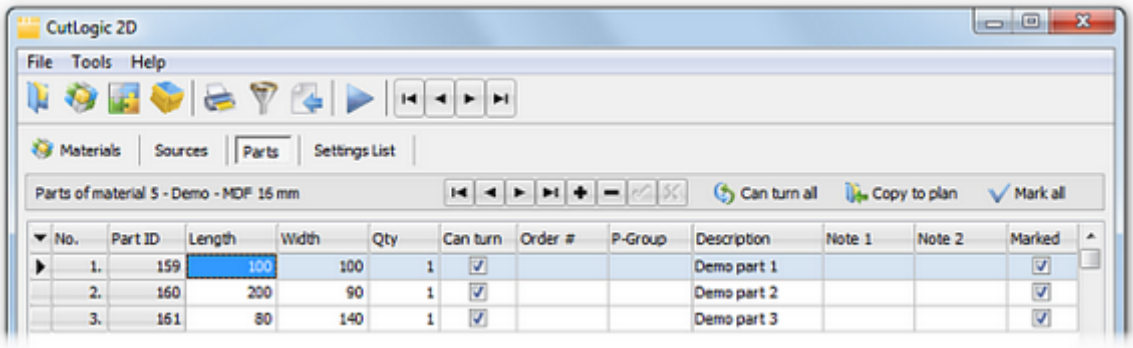

CutLogic 2D
File Tools Help
Plans Sources Parts Settings Results
Parts of plan 9 - New Demo Plan
Can turn all Material Assemblies
No. Part ID Length Width Qty Can turn Uncut Order # P-Group Description Note 1 Note 2
1. 1 1 1

"Length", "Width", and "Qty" are mandatory fields. Enter the length of parts to the field "Length". Enter the width of the parts to the field "Width". Enter desired number of parts you want to cut to the field "Qty". Value from the field "Qty" will be automatically copied to the field "Uncut". This field is used to show uncut parts in case of insufficient sources. Then you can enter the other fields like "Order#", "P-Group", "Description", "Note 1" and "Note 2". Filling in this field is optional, but it gives you better overview about the parts in the plan.


CutLogic 2D
File Tools Help
Plans Sources Parts Settings Results
Parts of plan 9 - New Demo Plan
Can turn all Material Assemblies
No. Part ID Length Width Qty Can turn Uncut Order # P-Group Description Note 1 Note 2
1. 156 250 70 10 10
2. 157 140 55 55 55
3. 158 330 210 15 15

Copying predefined parts from Materials

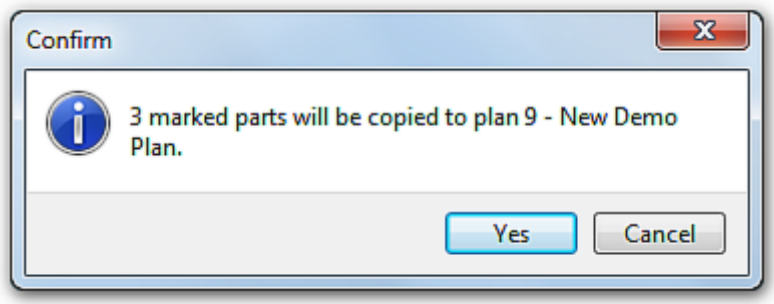
If you often use the parts with the same parameters, you can predefine them in Material Parts. Whenever you need them, you can copy them into the plan.
By clicking the button [Material] , the form Material Parts with predefined parts opens.


CutLogic 2D
File Tools Help
Materials Sources Parts Settings List
Parts of material 5 - Demo - MDF 16 mm
Can turn all Copy to plan Mark all
No. Part ID Length Width Qty Can turn Order # P-Group Description Note 1 Note 2 Marked
1. 159 100 100 1 Demo part 1
2. 160 200 90 1 Demo part 2
3. 161 80 140 1 Demo part 3

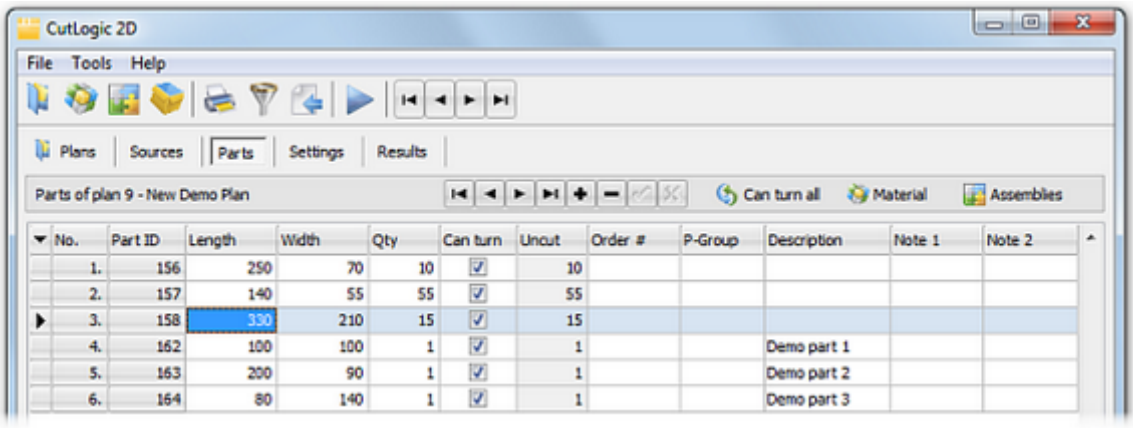
You can mark one or more parts and import them to the plan by clicking the button [Copy to plan].

TIP! Click the button [Mark all] to mark all available parts.

After clicking the button [Copy to plan] following confirmation form appears:



After clicking the button [Yes], parts are copied to the plan.


CutLogic 2D
File Tools Help
Plans Sources Parts Settings Results
Parts of plan 9 - New Demo Plan
Can turn all Material Assemblies
No. Part ID Length Width Qty Can turn Uncut Order # P-Group Description Note 1 Note 2
1. 156 250 70 10 10
2. 157 140 55 55 55
3. 158 330 210 15 15
4. 162 100 100 1 1 Demo part 1
5. 163 200 90 1 1 Demo part 2
6. 164 80 140 1 1 Demo part 3

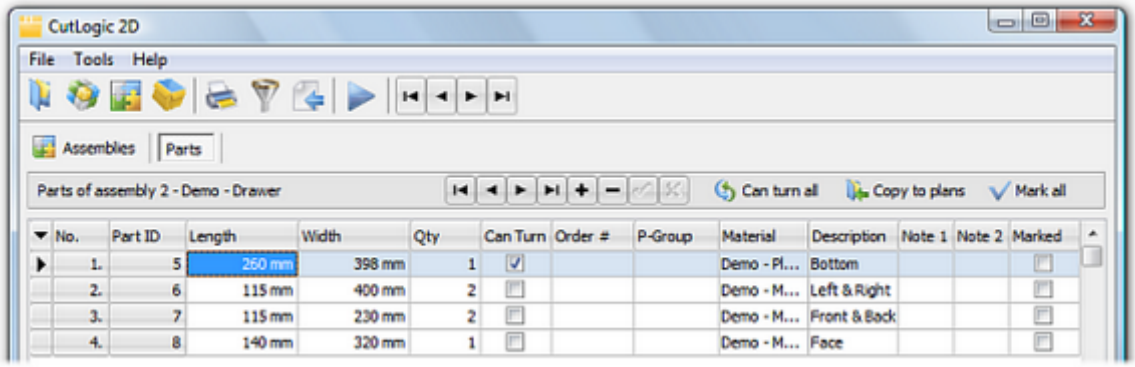
Now you can change and edit fields as you need.

Copying predefined parts from Assemblies

Assemblies allow you to define multipart products in Inventory and to work with them. Parts in Assemblies represent bill of material for given end product. Working with assemblies simplifies preparation work when defining new cutting plan. When preparing a new cutting plan for given material you can copy all Assemblies containing parts made from given material to the plan.

Example:
You need to prepare plan for material Demo – MDF 16 mm because your customer ordered 20 Drawers from your catalogue.

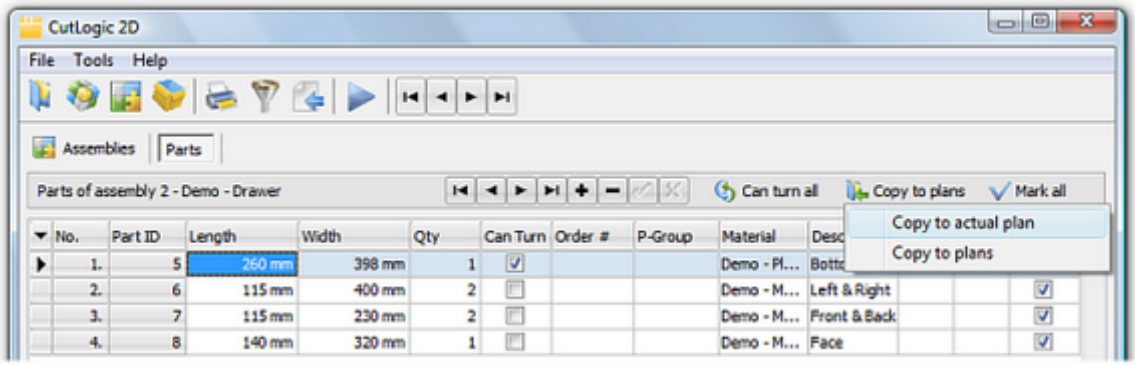
First, have a look at how the parts of Demo-Drawer are defined in the Assemblies:


CutLogic 2D
File Tools Help
Assemblies
Parts
Parts of assembly 2 - Demo - Drawer
Can turn all
Copy to plans
Mark all
No. Part ID Length Width Qty Can Turn Order # P-Group Material Description Note 1 Note 2 Marked
1. 5 260 mm 398 mm 1 Demo - Pl... Bottom
2. 6 115 mm 400 mm 2 Demo - M... Left & Right
3. 7 115 mm 230 mm 2 Demo - M... Front & Back
4. 8 140 mm 320 mm 1 Demo - M... Face

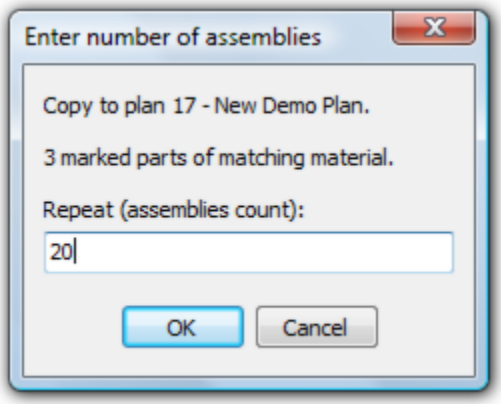
NOTE! Notice that assembly Demo-Drawer contains parts made from different material, so that you have to prepare separate cutting plan for every material in order to cut all needed parts.

Now you can define cutting plan for material Demo – MDF 16 mm and copy related parts to the plan by using Assemblies. Define a new plan and click Parts tab.

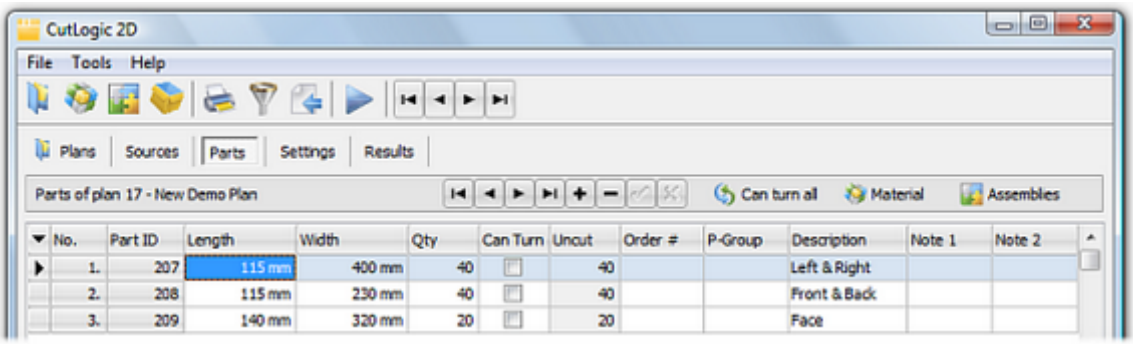
Next click the button [Assemblies] to open Assemblies Parts form. Then click the button [Mark all] to select all parts for copying into the Plans Parts form and click the button [Copy to plans].


CutLogic 2D
File Tools Help
Assemblies
Parts
Parts of assembly 2 - Demo - Drawer
Can turn all
Copy to plans
Mark all
Copy to actual plan
Copy to plans
No. Part ID Length Width Qty Can Turn Order # P-Group Material
1. 5 260 mm 398 mm 1 Demo - Pl...
2. 6 115 mm 400 mm 2 Demo - M... Left & Right
3. 7 115 mm 230 mm 2 Demo - M... Front & Back
4. 8 140 mm 320 mm 1 Demo - M... Face

Now click [Copy to actual plan] .



Enter number of assemblies – in our demo case we want to cut parts for 20 Drawers - and click the button [OK] .


CutLogic 2D
File Tools Help
Plans Sources Parts Settings Results
Parts of plan 17 - New Demo Plan
Can turn all Material Assemblies
No. Part ID Length Width Qty Can Turn Uncut Order # P-Group Description Note 1 Note 2
1. 207 115 mm 400 mm 40 40 Left & Right
2. 208 115 mm 230 mm 40 40 Front & Back
3. 209 140 mm 320 mm 20 20 Face

NOTE! Notice that only matching parts with the same material as defined in given plan will be copied!

Importing parts from external source of data

The fourth way how to enter the parts to the plan is to import them from the external source.

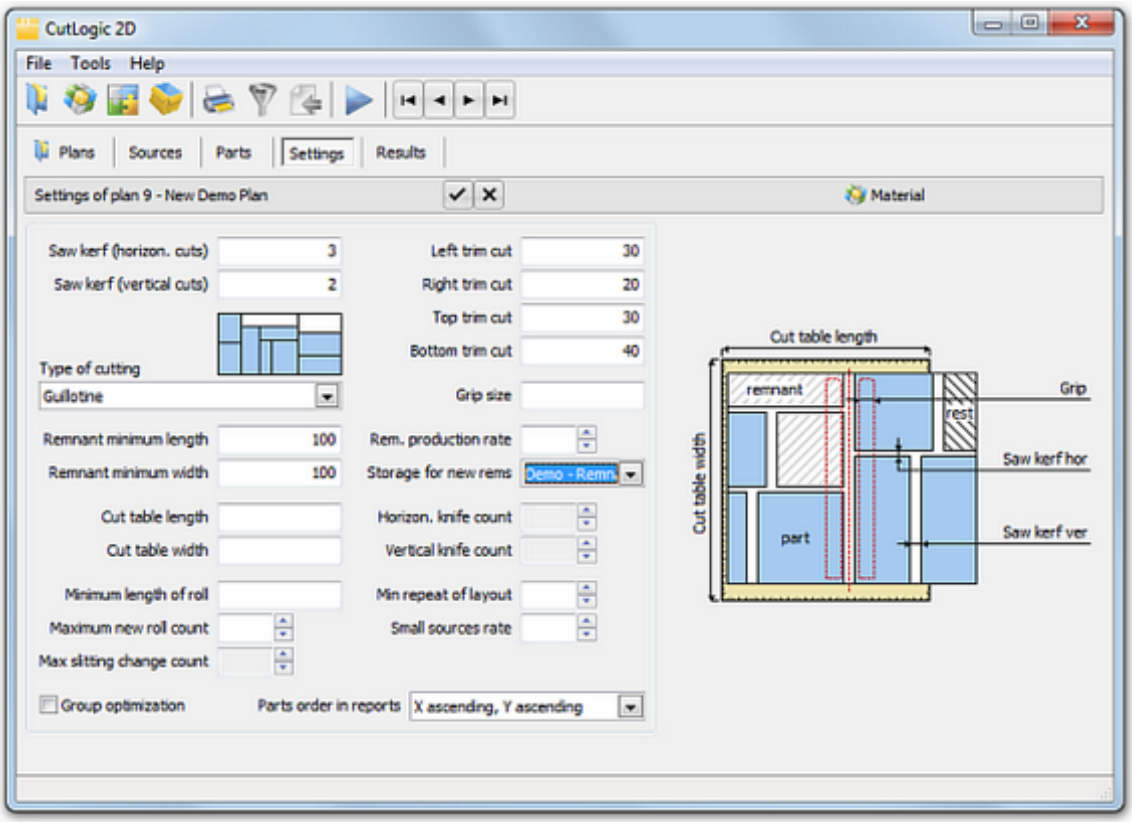
It is possible to import parts from any of following structured files: TXT, CSV, MS Excel file, MS Access file, from clipboard or from an external database via connection string definition.

You can import sources from external source by clicking the menu "*File* > *Import*" or by pressing [Ctrl+I] keyboard shortcut. Read more about import in chapter Import.

TIP! It is possible to combine above mentioned ways of entering the parts, however keep in mind all consequences!

Entering Settings for the Plan

When sources and parts are entered, you can start to define the Settings for the plan. Click the Settings tab to open Plan Setting form.



There are two ways how to define Settings:

- Entering parameters directly
- Copying predefined Settings from Materials

Entering parameters directly

Settings tab allows you to define cutting settings for given plan.

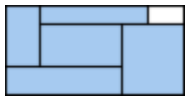
Settings

Saw kerf (horizontal cuts)	Enter if it is necessary to set saw kerf (cut width) for horizontal cuts.
Saw kerf (vertical cuts)	Enter if it is necessary to set saw kerf (cut width) for vertical cuts.
Left trim cut	Enter if it is necessary to trim the source on the left end (E.g. due to damage or deformation).

Right trim cut	Enter if it is necessary to trim the source on the right end (E.g. due to damage or deformation).
Top trim cut	Enter if it is necessary to trim the source on the top end (E.g. due to damage or deformation).
Bottom trim cut	Enter if it is necessary to trim the source on the bottom end (E.g. due to damage or deformation).

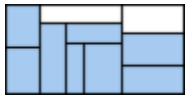
Type of cutting

- Unrestricted (Nested)



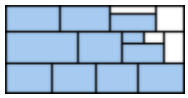
This is a non-guillotine (nested) cutting which provides the highest yield but is suitable only for special cutting machines.

- Guillotine (edge to edge)



This is a general guillotine (edge-to-edge) cutting with unlimited number of cut stages. It can lead to cutting plans with higher complexity but yield is still very high. Optimizer itself decides whether to start in vertical or horizontal dimension.

- 3-stage relaxed

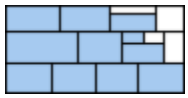


This is a guillotine (edge-to-edge) cutting, the same as "3-stage relaxed ver" and "3-stage relaxed hor", optimizer itself decides whether to start in vertical or horizontal dimension.

- 3-stage relaxed ver

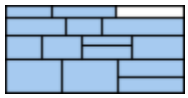
This is a guillotine (edge-to-edge) cutting with maximum 3.5 cut stages, starting with vertical cuts. Cut stages are: 1st: vertical cuts, 2nd: horizontal cuts, 3rd: vertical cuts. 4th stage with horizontal cuts is allowed only for finishing parts.

- 3-stage relaxed hor



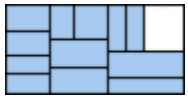
This is a guillotine (edge-to-edge) cutting with maximum 3.5 cut stages, starting with horizontal cuts. Cut stages are: 1st: horizontal cuts, 2nd: vertical cuts, 3rd: horizontal cuts. 4th stage with vertical cuts is allowed only for finishing parts.

- 3-stage exact



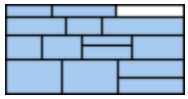
This is a guillotine (edge-to-edge) cutting, the same as "3-stage exact ver" and "3-stage exact hor", optimizer itself decides whether to start in vertical or horizontal dimension.

- 3-stage exact ver



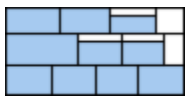
This is a guillotine (edge-to-edge) cutting with maximum 3 cut stages, starting with vertical cuts. Cut stages are: 1st: vertical cuts, 2nd: horizontal cuts, 3rd: vertical cuts.

- 3-stage exact hor



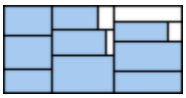
This is a guillotine (edge-to-edge) cutting with maximum 3 cut stages, starting with horizontal cuts. Cut stages are: 1st: horizontal cuts, 2nd: vertical cuts, 3rd: horizontal cuts.

- 2-stage relaxed



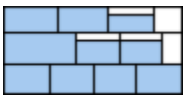
This is a guillotine (edge-to-edge) cutting, the same as "2-stage relaxed ver" and "2-stage relaxed hor", optimizer itself decides whether to start in vertical or horizontal dimension.

- 2-stage relaxed ver



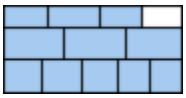
This is a guillotine (edge-to-edge) cutting with maximum 2.5 cut stages, starting with vertical cuts. Cut stages are: 1st: vertical cuts, 2nd: horizontal cuts. 3rd stage with vertical cuts is allowed only for finishing parts.

- 2-stage relaxed hor



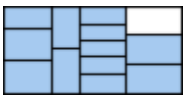
This is a guillotine (edge-to-edge) cutting with maximum 2.5 cut stages, starting with horizontal cuts. Cut stages are: 1st: horizontal cuts, 2nd: vertical cuts. 3rd stage with horizontal cuts is allowed only for finishing parts.

- 2-stage exact



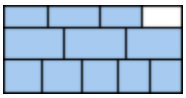
This is a guillotine (edge-to-edge) cutting, the same as "2-stage exact ver" and "2-stage exact hor", optimizer itself decides whether to start in vertical or horizontal dimension.

- 2-stage exact ver



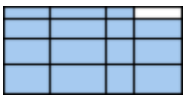
This is a guillotine (edge-to-edge) cutting with maximum 2 cut stages, starting with vertical cuts. Cut stages are: 1st: vertical cuts, 2nd: horizontal cuts.

- 2-stage exact hor



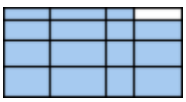
This is a guillotine (edge-to-edge) cutting with maximum 2 cut stages, starting with horizontal cuts. Cut stages are: 1st: horizontal cuts, 2nd: vertical cuts.

- 2-stage simple



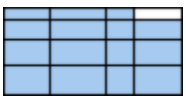
This is a guillotine (edge-to-edge) cutting, the same as "2-stage simple ver" and "2-stage simple hor", optimizer itself decides whether to start in vertical or horizontal dimension.

- 2-stage simple ver / shearing & slitting



This is a guillotine (edge-to-edge) cutting with maximum 1.5 cut stages, starting with vertical cuts. Cut stages are: 1st: vertical cuts, 2nd: horizontal cuts across all vertical strips at once.

- 2-stage simple hor / slitting & shearing



This is a guillotine (edge-to-edge) cutting with maximum 1.5 cut stages, starting with horizontal cuts. Cut stages are: 1st: horizontal cuts, 2nd: vertical cuts across all horizontal strips at once.

Grip size

Enter if it is necessary to hold (grip) material on one or both sides of each cut. Optimizer will make sure that on both sides of each cut, there will be at least this specified amount of material available for gripping. This is useful e.g. in glass cutting when minimum size on both sides of cut is necessary for grip.

Remnant minimum length

You can set here minimum length for remnants. Function "Close project" will move rests with length and width greater or equal to defined values to the storage defined for new remnants. Function "Open

	project" will delete these remnants from inventory.
Remnant minimum width	You can set here minimum width for remnants. Function "Close project" will move rests with length and width greater or equal to defined values to the storage defined for new remnants. Function "Open project" will delete these remnants from inventory.
Rem. production rate	Set value from 0 to 99. Predefined value is 0 = production of remnants will be restricted as much as possible. 99 means production of remnants will be preferred as much as possible. Note: weighted production of remnants positively affects the yield and decreases scrap factor.
Storage for new rems	You can specify here storage for new remnants. Function "Close project" will move rests with length greater or equal to minimum length into this storage. Function "Open project" will delete these remnants from storage.
Cut table length	Here you can limit length of horizontal cuts. No horizontal cut will be longer than this value.
Cut table width	Here you can limit length of vertical cuts. No vertical cut will be longer than this value.
Horizon. knife count	Here you can set number of horizontal knives / horizontal cuts. This option is enabled only for horizontal (hor) cut types.
Vertical knife count	Here you can set number of vertical knives / vertical cuts. This option is enabled only for vertical (ver) cut types.
Minimum length of roll	Here you can set minimum length of roll. If newly created rest is the same length or longer than this value and has the same width as its source, it is considered to be a "roll". Newly created rolls are considered to be 0% waste.
Maximum new roll count	Here you can define maximum number of newly created remnant rolls. It is equal to maximum number of partially used source rolls.
Max slitting change count	Set if you want to define maximum allowed number of slitting knives settings per one roll.
Min repeat of layout	Optimizer tries to find cutting plan in which each layout is repeated as many times as entered value.
Small sources rate	Set if you want to prefer small sources to be used in plan. The higher is the value set, the higher is use of the small sources in calculation of cutting plan. (0 - no sizes are preferred, 33 - small sources are preferred to big sources with relative rate 33%, 99 - small sources are maximally preferred)
Group Optimization	Check this box to ensure that parts belonging to the same P-Group will be cut only from sources belonging to one of defined S-Groups. P-Group is group of parts with the same P-Group identifier.

	S-Group is group of sources with the same S-Group identifier. See more below.
Parts order in reports	Here you can set order of layout parts in reports.

What is Group optimization?

CutLogic 2D allows grouping of parts and sources. Group optimization utilizes these groupings in order to find the best plan for given groups of parts among defined groups of sources. This is the way how Group optimization feature ensures the same parameters like color shade or surface patterns or by other words the same quality for all parts within given group. This feature is very useful especially in industries like furniture or window fashions where typical requirement is to ensure the same quality of all parts assembled into final products.

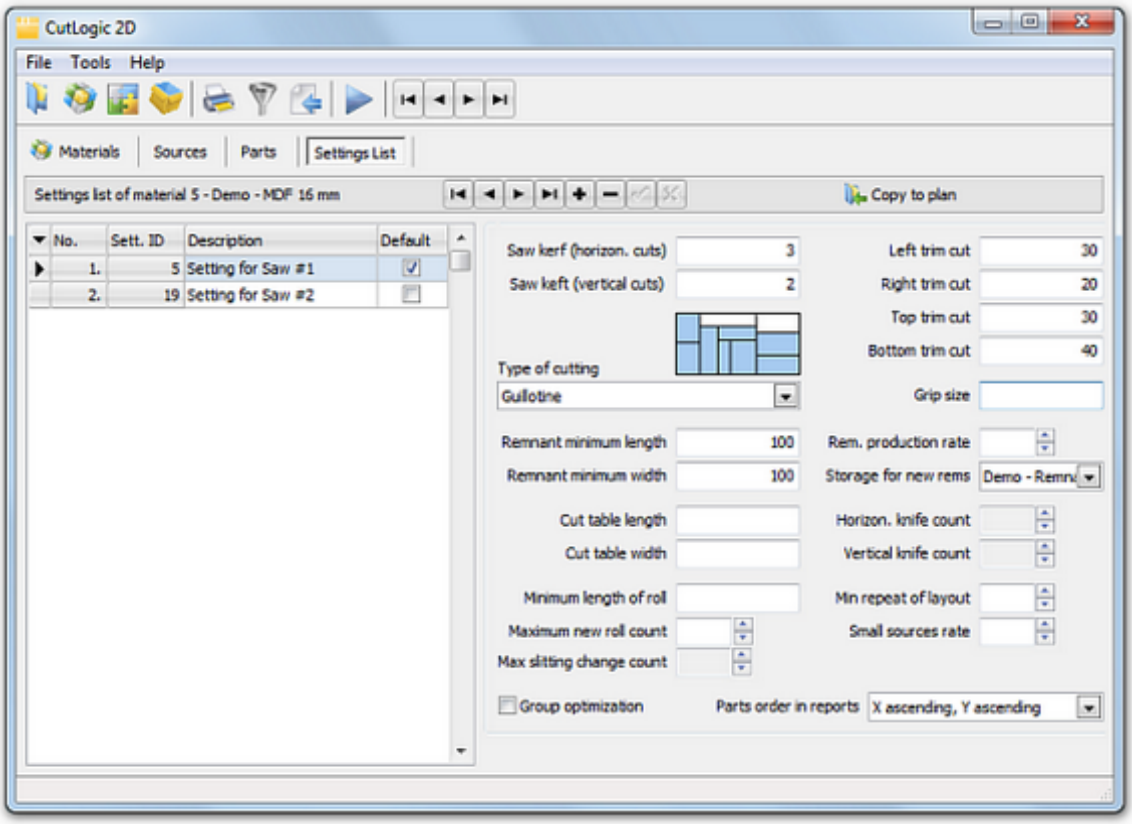
In one sentence, in case Group optimization is turned on, parts belonging to the same P-Group will be cut only from sources belonging to one of defined S-Groups.

NOTE! Some of parameters are available only in Professional Edition or in Enterprise Edition. See chapter Editions Comparison for details.

Copying predefined Settings from Materials

If you often use the same settings for new plans or if you want to setup different settings for different cutting machines, you can predefine them in Material Settings List form. Whenever you need it, you can load them to the plan.

By clicking the button [Material], the Material Settings List form opens.

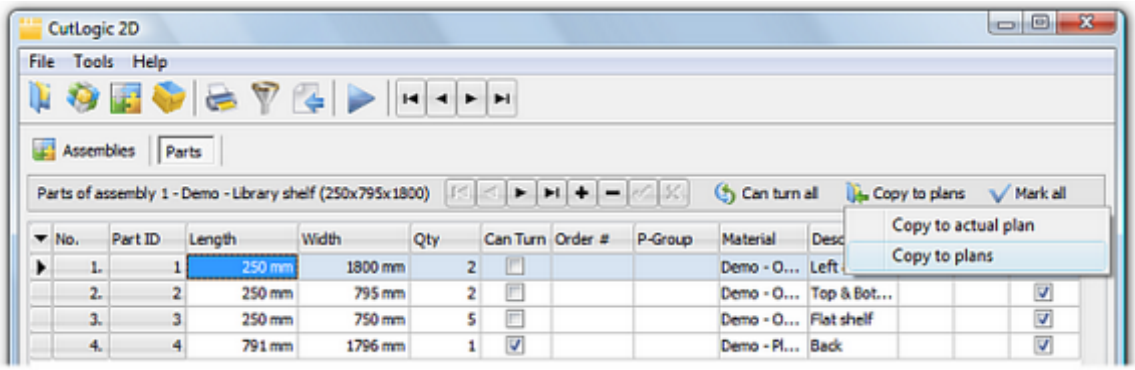


You can choose settings from Settings List and write them to the plan. Click the desired settings in settings list on the left side of the form and click the button [Copy to plan] to copy this settings to the plan.

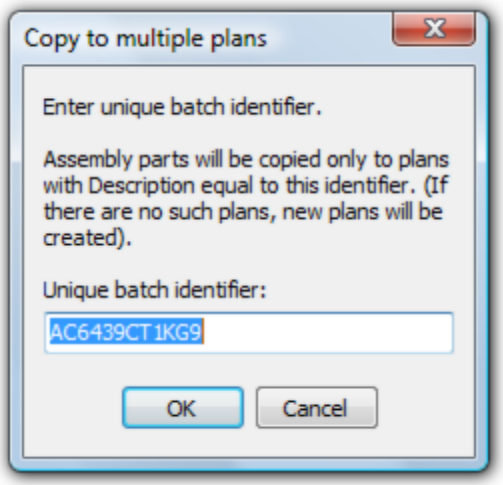
Entering Multiple Plans from an Assembly

Entering Multiple Plans from an assembly is a very useful feature decreasing your effort in the moment when you need to prepare all plans for all materials defined in one assembly. It allows you to prepare all plans in one turn.

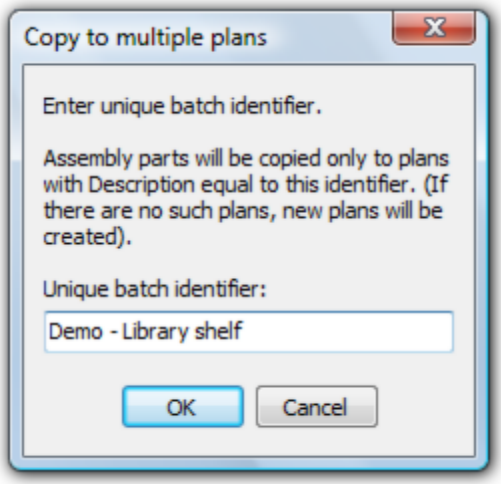
First, select assembly you need to prepare multi plans for.


CutLogic 2D
File Tools Help
Assemblies
Parts
Parts of assembly 1 - Demo - Library shelf (250x795x1800)
Can turn all
Copy to plans
Mark all
Copy to actual plan
Copy to plans
No. Part ID Length Width Qty Can Turn Order # P-Group Material
1. 1 250 mm 1800 mm 2 Demo - O...
2. 2 250 mm 795 mm 2 Demo - O... Top & Bot...
3. 3 250 mm 750 mm 5 Demo - O... Flat shelf
4. 4 791 mm 1796 mm 1 Demo - Pl... Back

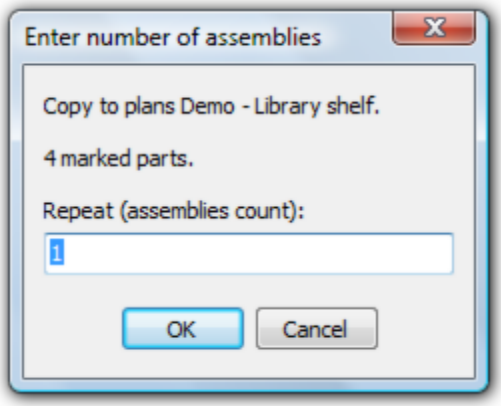
Next click [Copy to plans] button and select [Copy to plans] .


Copy to multiple plans
Enter unique batch identifier.
Assembly parts will be copied only to plans with Description equal to this identifier. (If there are no such plans, new plans will be created).
Unique batch identifier:
AC6439CT1KG9
OK
Cancel

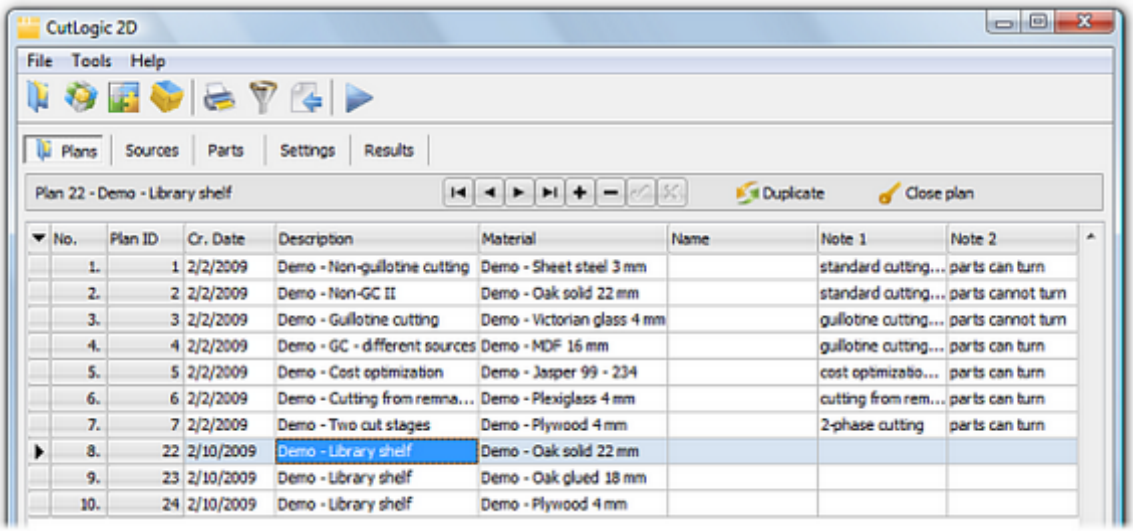
Unique batch identifier is automatically generated. You can use this one or rename the batch as you need.

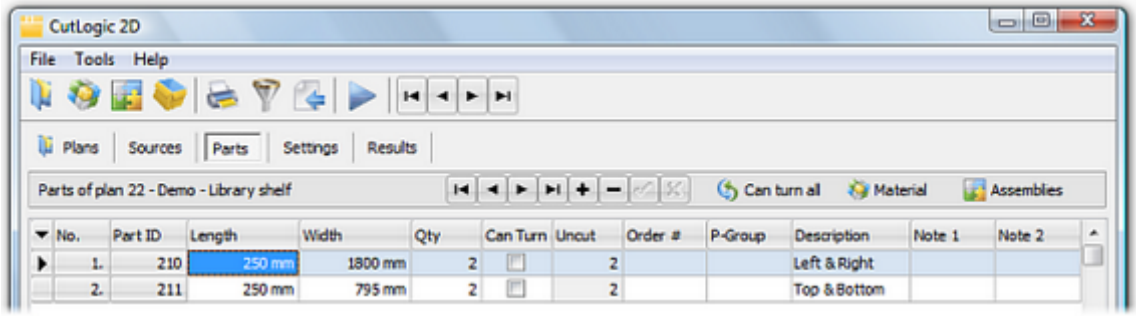

Copy to multiple plans
Enter unique batch identifier.
Assembly parts will be copied only to plans with Description equal to this identifier. (If there are no such plans, new plans will be created).
Unique batch identifier:
Demo - Library shelf
OK
Cancel

Now click [OK] button.



TIP! You can use one Unique batch identifier for as many Assemblies as you need. When creating Multi-material plan for next Assembly simply use the same Unique batch identifier as for the first Assembly. This approach leads to better yield and better labor organization.

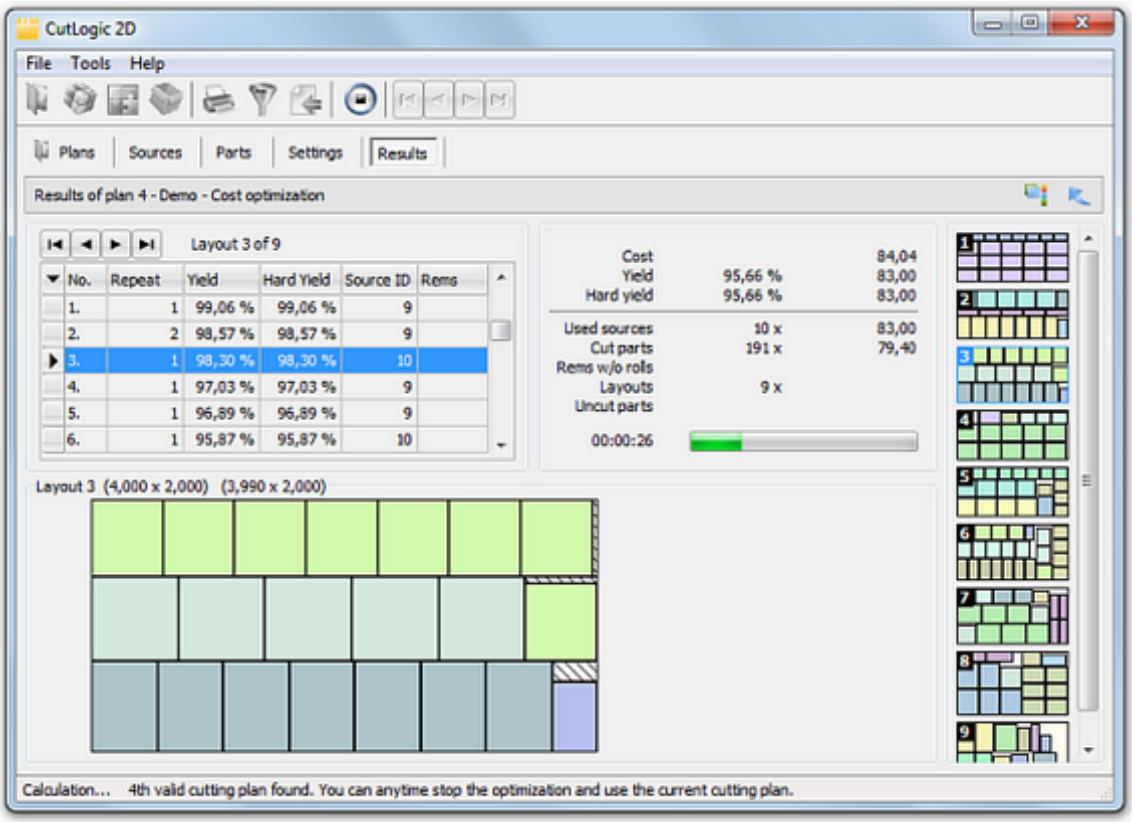

CutLogic 2D
File Tools Help
Plans Sources Parts Settings Results
Plan 22 - Demo - Library shelf
Duplicate
Close plan
No. Plan ID Cr. Date Description Material Name Note 1 Note 2
1. 1 2/2/2009 Demo - Non-guillotine cutting Demo - Sheet steel 3 mm standard cutting... parts can turn
2. 2 2/2/2009 Demo - Non-GC II Demo - Oak solid 22 mm standard cutting... parts cannot turn
3. 3 2/2/2009 Demo - Guillotine cutting Demo - Victorian glass 4 mm guillotine cutting... parts cannot turn
4. 4 2/2/2009 Demo - GC - different sources Demo - MDF 16 mm guillotine cutting... parts can turn
5. 5 2/2/2009 Demo - Cost optimization Demo - Jasper 99 - 234 cost optimizatio... parts can turn
6. 6 2/2/2009 Demo - Cutting from remna... Demo - Plexiglass 4 mm cutting from rem... parts can turn
7. 7 2/2/2009 Demo - Two cut stages Demo - Plywood 4 mm 2-phase cutting parts can turn
8. 22 2/10/2009 Demo - Library shelf Demo - Oak solid 22 mm
9. 23 2/10/2009 Demo - Library shelf Demo - Oak glued 18 mm
10. 24 2/10/2009 Demo - Library shelf Demo - Plywood 4 mm


CutLogic 2D
File Tools Help
Plans Sources Parts Settings Results
Parts of plan 22 - Demo - Library shelf
Can turn all
Material
Assemblies
No. Part ID Length Width Qty Can Turn Uncut Order # P-Group Description Note 1 Note 2
1. 210 250 mm 1800 mm 2 2 Left & Right
2. 211 250 mm 795 mm 2 2 Top & Bottom

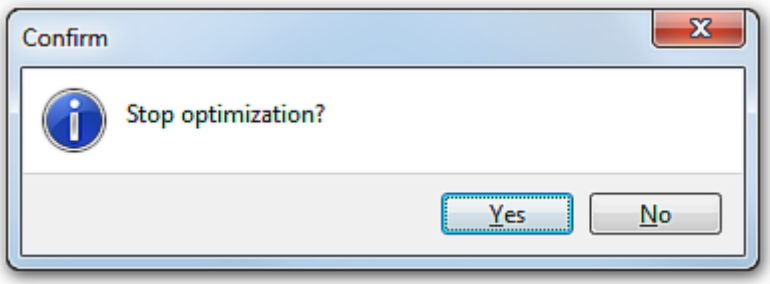
Running Optimization

When all the information needed for the plan is defined (sources, parts, settings), you can start to perform the optimization of cutting layouts.

To start calculation of cutting layouts for the current plan, click the button in Main Toolbar. You can also run optimization directly by pressing keyboard shortcut [F3] or by selecting *"File > Start Optimization"* from the menu. You don't have to switch to Results form, the program does it automatically. During the optimization, you can watch its progress and the best results which are achieved.

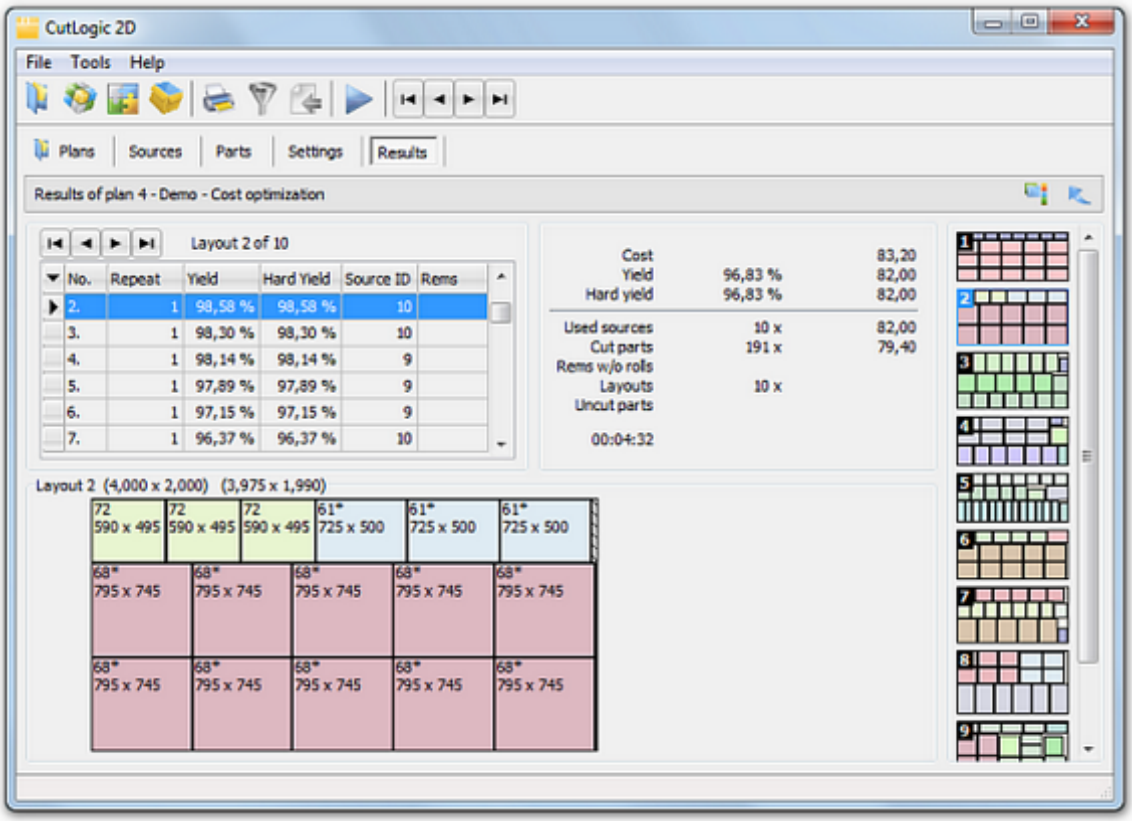

CutLogic 2D
File Tools Help
Plans Sources Parts Settings Results
Results of plan 4 - Demo - Cost optimization
Layout 3 of 9
No. Repeat Yield Hard Yield Source ID Rems
1. 1 99,06 % 99,06 % 9
2. 2 98,57 % 98,57 % 9
3. 1 98,30 % 98,30 % 10
4. 1 97,03 % 97,03 % 9
5. 1 96,89 % 96,89 % 9
6. 1 95,87 % 95,87 % 10
Cost 84,04
Yield 95,66 % 83,00
Hard yield 95,66 % 83,00
Used sources 10 x 83,00
Cut parts 191 x 79,40
Rems w/o rolls
Layouts 9 x
Uncut parts
00:00:26
Layout 3 (4,000 x 2,000) (3,990 x 2,000)
Calculation... 4th valid cutting plan found. You can anytime stop the optimization and use the current cutting plan.

You can stop optimization process at any time by clicking the button in the Main Toolbar or by pressing keyboard shortcut [Esc]. In such case following confirmation dialog appears:



If you click the button [Yes], program will stop the optimization and the values will be saved in the plan. Previous results will be overwritten by values which were found in the moment the optimization process was interrupted. If you click the button [No], the optimization will continue.

When optimization is finished, the best cutting layouts will be automatically entered to the plan. The cutting layouts which were saved the last are always stored for next potential use (additional printing of reports, statistics, etc.)

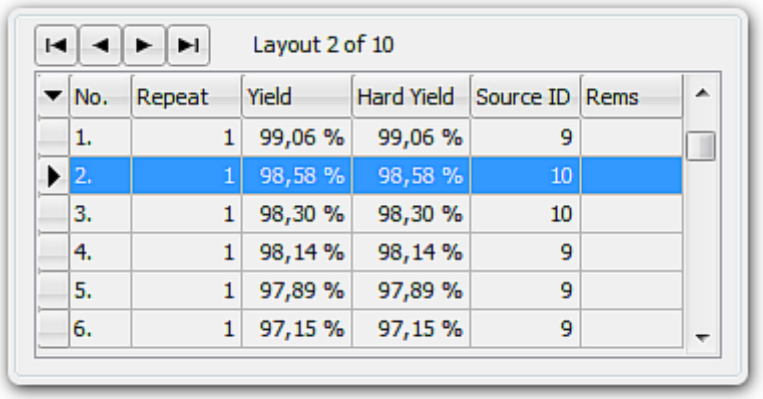

CutLogic 2D
File Tools Help
Plans Sources Parts Settings Results
Results of plan 4 - Demo - Cost optimization
Layout 2 of 10
No. Repeat Yield Hard Yield Source ID Rems
2. 1 98,58 % 98,58 % 10
3. 1 98,30 % 98,30 % 10
4. 1 98,14 % 98,14 % 9
5. 1 97,89 % 97,89 % 9
6. 1 97,15 % 97,15 % 9
7. 1 96,37 % 96,37 % 10
Cost 83,20
Yield 96,83 % 82,00
Hard yield 96,83 % 82,00
Used sources 10 x 82,00
Cut parts 191 x 79,40
Rems w/o rolls
Layouts 10 x
Uncut parts
00:04:32
Layout 2 (4,000 x 2,000) (3,975 x 1,990)
72 590 x 495
61* 725 x 500
68* 795 x 745

TIP! When you choose particular plan in Plans form and you click the Results tab, you can immediately go over cutting layouts and summary of data which were saved the last.

TIP! If the achieved results fulfill your needs and the optimization is not finished, you can stop it and use these results in the plan.

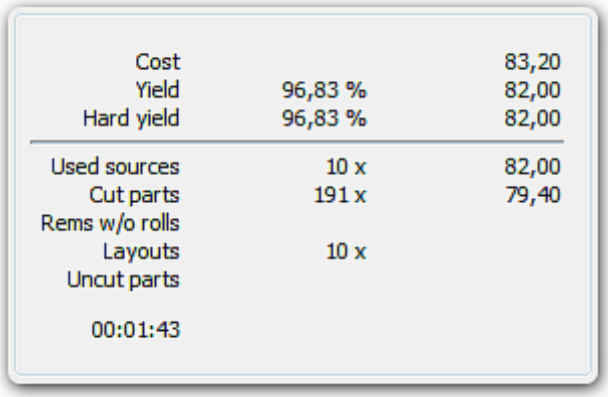
Layouts

Following data grid shows the cutting layouts which were calculated by the program and user is immediately able to see their overview.



Summary

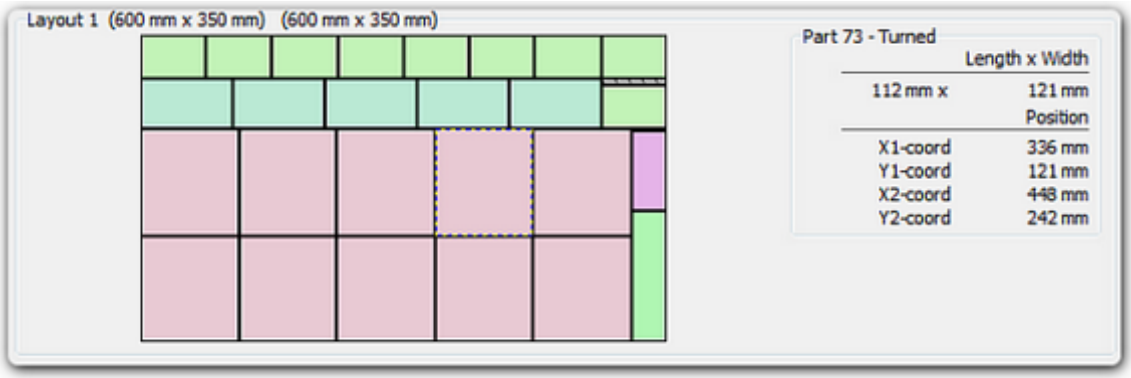
Here is complete information about the progress of calculation and currently achieved values of an active project (Cost, Yield, Hard yield, Used sources, Cut parts, Remnants, Layouts, Uncut parts).



Column 1	Column 2	Column 3
Cost	-	Overall cost of the project.
Yield	Achieved utilization in percentage taking into account produced remnants. [(Sum area of used parts / (Sum area of used sources - Sum area of produced remnants)]	Absolute value of achieved utilization taking into account produced remnants. [Sum area of used sources - Sum area of produced remnants]
Hard yield	Achieved utilization in percentage not taking into account produced remnants. [Sum area of used parts / Sum area of used sources]	Absolute value of achieved utilization not taking into account produced remnants. [Sum area of used sources]
Used sources	Number of sources used in calculated cutting plan.	[Sum area of used sources]
Cut parts	Number of parts used in calculated cutting plan.	[Sum area of used parts]
Rems w/o rolls	Number of reusable remnants produced in calculated cutting plan without newly created remnant rolls.	[Sum area of remnants]
Layouts	Number of layouts of calculated cutting plan.	-
Uncut parts	Number of uncut parts (not used parts) in calculated cutting plan.	[Sum area of uncut parts]

Layout

Graphical representation of the layout which is currently selected.


Layout 1 (600 mm x 350 mm) (600 mm x 350 mm)
Part 73 - Turned
Length x Width
112 mm x 121 mm
Position
X1-coord 336 mm
Y1-coord 121 mm
X2-coord 448 mm
Y2-coord 242 mm

TIP! When clicking on individual part of a layout, basic information about it is showed (part number, position in layout, size).

It is possible to switch between colored or non-colored palette of Part colors used in graphics.

You can change part colors by clicking the button .

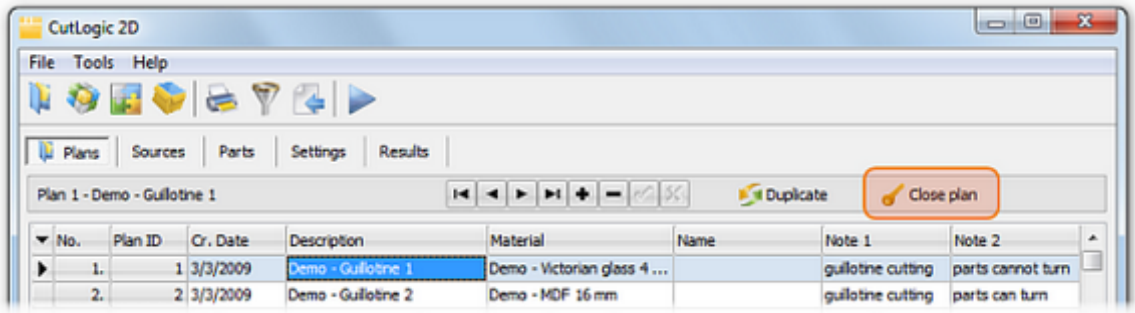
It is also possible to resize layout picture. This will hide Layouts and Summary tables and enlarge the graphic representation of currently set layout. To resize layout image click the button or press [F5].

Scroll Bar

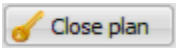
Enables quick scrolling among individual layouts. Graphical representation also enables to get immediate overview about organization of individual parts in a layout.

Opening and Closing the Plan

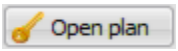
It is possible to close already optimized and finished plans and disable their unwanted modification. When sources of materials used in plans are stored sources registered in the Inventory, by closing the plans used sources will be counted off the Inventory and their count will be automatically set to real values. In case of need, it is possible to re-open plans and modify them.


CutLogic 2D
File Tools Help
Plans Sources Parts Settings Results
Plan 1 - Demo - Guillotine 1
Duplicate
Close plan
No. Plan ID Cr. Date Description Material Name Note 1 Note 2
1. 1 3/3/2009 Demo - Guillotine 1 Demo - Victorian glass 4 ... guillotine cutting parts cannot turn
2. 2 3/3/2009 Demo - Guillotine 2 Demo - MDF 16 mm guillotine cutting parts can turn

To close / open plans click the button [Close plan] / [Open plan] in Plans form. Opening and closing of plans is described as follows:



Locks the plan so it is impossible to modify it. When sources of materials used in the plan are registered in Inventory, the sources used in the plan are automatically removed from dedicated Material and Storage. Reusable remnants are added to dedicated Materials and Storage as new sources. The length of reusable remnants is set in Settings of plan.



Opens the plan so it is possible to modify it. By opening the plan the changes (made when the plan was closed) are restored to its original state. Source levels are readjusted according to real state before closing of the plan and reusable remnants added to Sources are removed.

Reports

General

Reports is an important part of the program, where you can print or preview any data, such as cutting layouts, lists, labels, etc. displayed in printable format. It is possible to choose from predefined reports, or you can create new ones (customized data views, statistics, etc.).

Predefined reports

Following list represents predefined reports divided into four groups according to active Master View (Plans, Materials, Assemblies or Storages).

Plans

Cutting Layout Part Labels	Labels for cutting layout parts of current or all plans.
Cutting Layout Remnant Labels	Labels for cutting layout remnants of current or all plans.
Cutting Layouts	Optimized cutting layouts for current or all plans.
Plan Part Labels	Labels for current or all parts of cutting layout.
Plan Parts	List of parts for current or all plans.
Plan Sources	List of sources for current or all plans.
Plans	List of plans.
Plans [detailed]	List of plans in detailed form.

Materials

Material Parts	List of parts for current or all materials.
Material Source Labels	Labels for current or all sources of actual material.
Material Sources	List of sources for current or all materials.
Material Sources [grouped by storages]	List of sources for current or all materials grouped by storages.
Materials	List of materials.

Assemblies

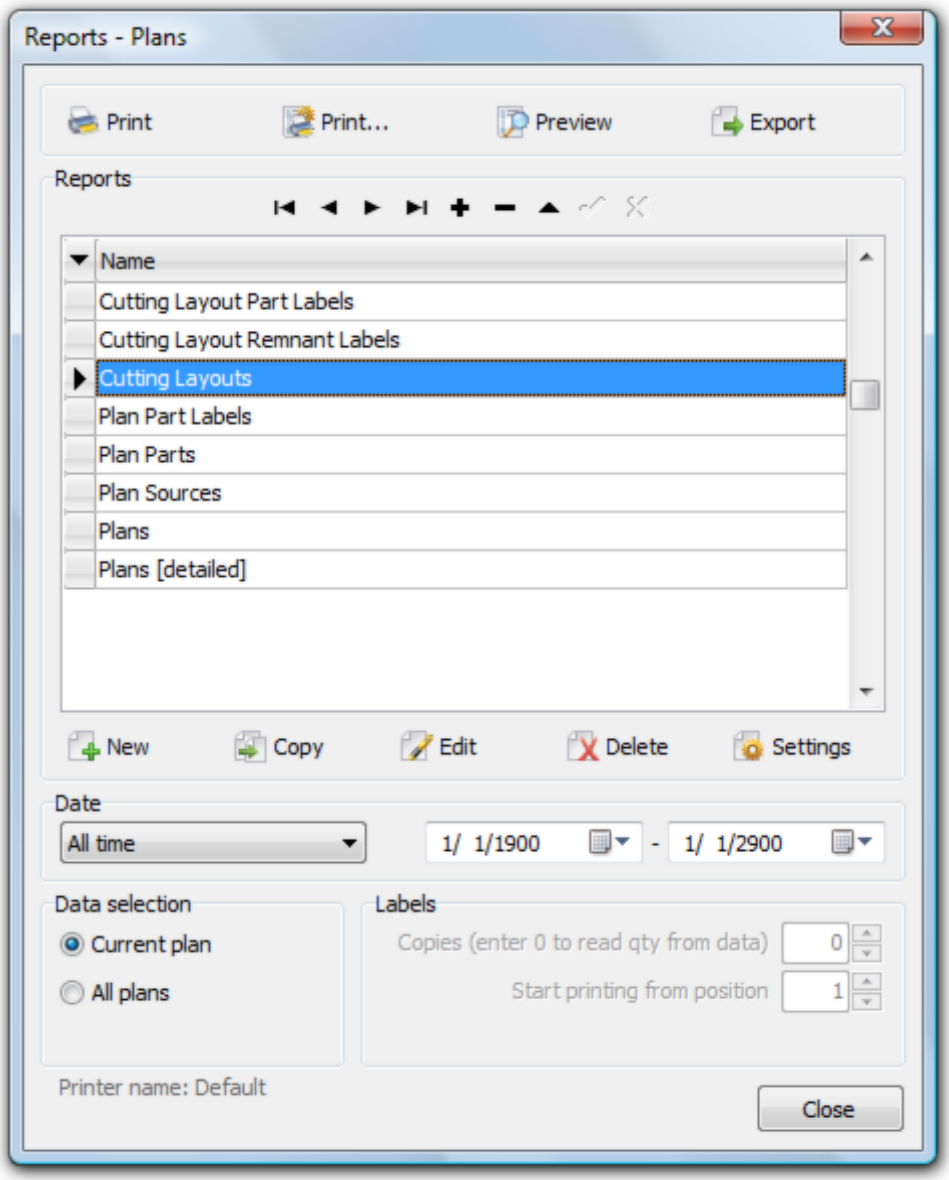
Assemblies	List of assemblies.
Assembly Parts	List of parts for current or all assemblies.

Storages

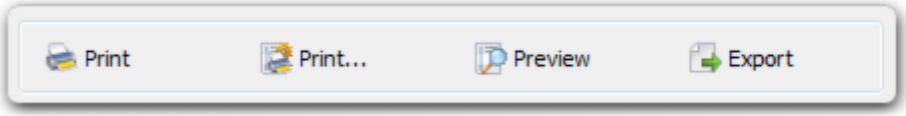
Storage Source Labels	Labels for current or all sources of actual storage.
Storage Sources	List of sources for current or all storages.
Storage Sources [grouped by materials]	List of sources for current or all storages grouped by materials.
Storages	List of storages.

The Reports Window

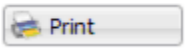
To work with Reports, click the button on the Main Toolbar or select the menu item "*File* > *Reports*" or use [Ctrl+P] keyboard shortcut.



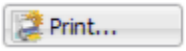
Main bar



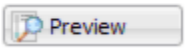
The Main bar is a collection of four speed buttons providing quick access to commonly used commands.



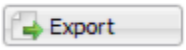
Immediately prints selected report at chosen printer (assigned to current report and/or current user).



Prints selected report at chosen printer. Print dialog, where it is possible to set additional printing properties (select printer, number of copies, print mode, etc.) will be shown before printing of report.



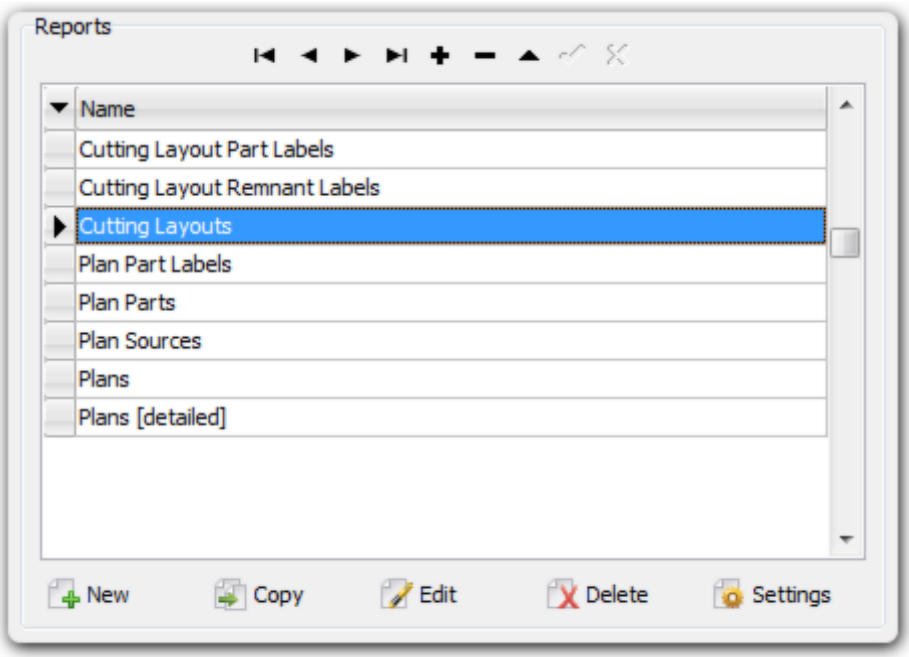
Shows preview of selected report.



Exports selected report (data) to CSV file, Text file, Excel table, HTML file, PDF file, RTF file, XML Excel file, ODT file, ODS file or sends report as an email. Read more about export in chapter Export.

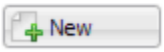
Reports

In this section of Reports Window, you can choose one of predefined or custom reports, which can be printed, previewed, exported or edited. Reports that will be displayed depend on view, which is currently active (Plans, Materials, Assemblies or Storages).

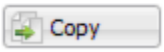


TIP! Double-click the chosen report to preview it immediately.

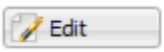
Further, it is possible to manage (create, copy, edit, delete) all available reports and also set printer for each report, in this section.



Creates new empty report from default template.

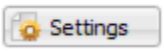


Copies selected report to new one.



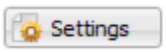
Starts editor for selected report.

Deletes selected report.

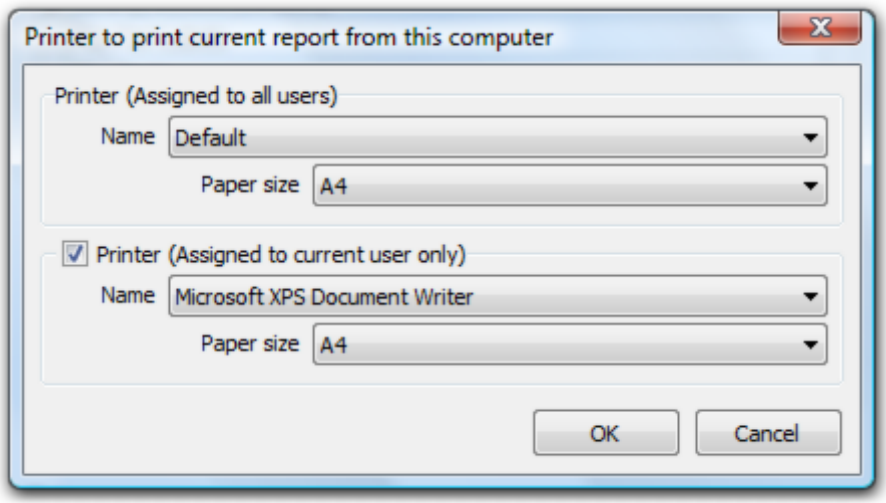


Sets printer for selected report.

Setting of printer for selected report

By clicking button 

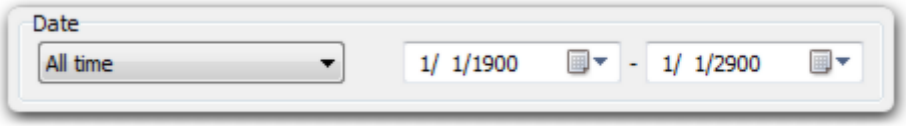
, it is possible to set printer and appropriate paper size to selected report. This setting is tied together with Computer Name, Report Name and/or User Name. It means that every computer on the network allows (if it is necessary) to print current report on different printer, without changing printing options (avoiding relentless changing of printer).



TIP! Setting of printer to each computer and user individually can be very useful feature on network versions (LAN, WAN) of the program, especially on thin client architecture networks such as Citrix and Terminal Services.

IMPORTANT! Assigning of printer to each user individually is possible only in network versions of the program.

Date



Some reports can be filtered by creation or manufacture date. You can set range of date (Date From - Date To) you want to print.

Following list represents predefined reports, which can be filtered by date:

Filter by creation date

Plans: Cutting Layouts, Plan Parts, Plan Sources, Plans, Plans [detailed].

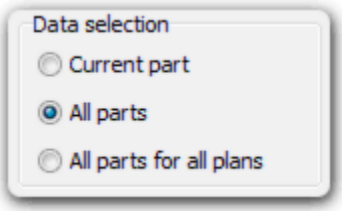
Filter by manufacture date

Materials: Material Sources, Material Sources [grouped by storages].

Storages: Storage Sources, Storage Sources [grouped by materials].

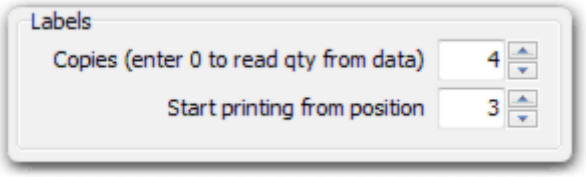
TIP! If you want to build your own reports using SQL (Structured Query Language), you can apply date parameters as "DateFr" (Date From) and "DateTo" (Date To) in your scripts.

Data selection



Here you can set data selection according to master dataset of selected report.
Set "Current ..." if you want to print current record or set "All ..." if you want to print all records of the current master dataset. Set "All ... for all ..." if you want to print batch report.

Labels



Here you can set number of copies and starting position to print label reports.

Copies (enter 0 to read qty from data)

Set number of copies (1–500) for printing of labels. In this case number of copies will be same for each label in current dataset. Set 0 if you want to print number of copies, which is entered in quantity field (Qty) of current dataset.

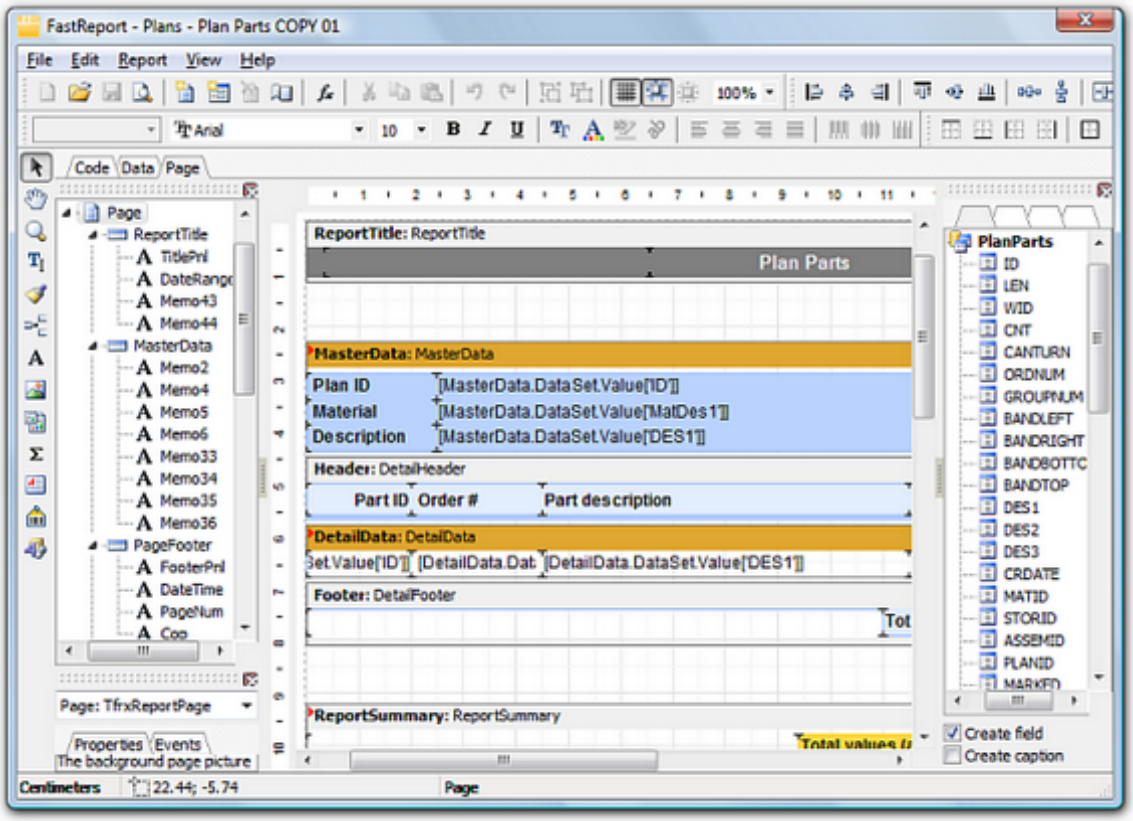
Start printing from position

Set start position (1-200) from which you want to print first label of the current labels dataset. The order of printing the labels is "Top to Bottom" and "Left to Right", as you can see in the following layout.

1	5	9
2	6	10
3	7	. . .
4	8	

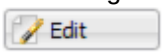
Editing of Standard Reports

To start working with embedded report editor, select appropriate (custom) standard report and click the button Edit or data navigator button .



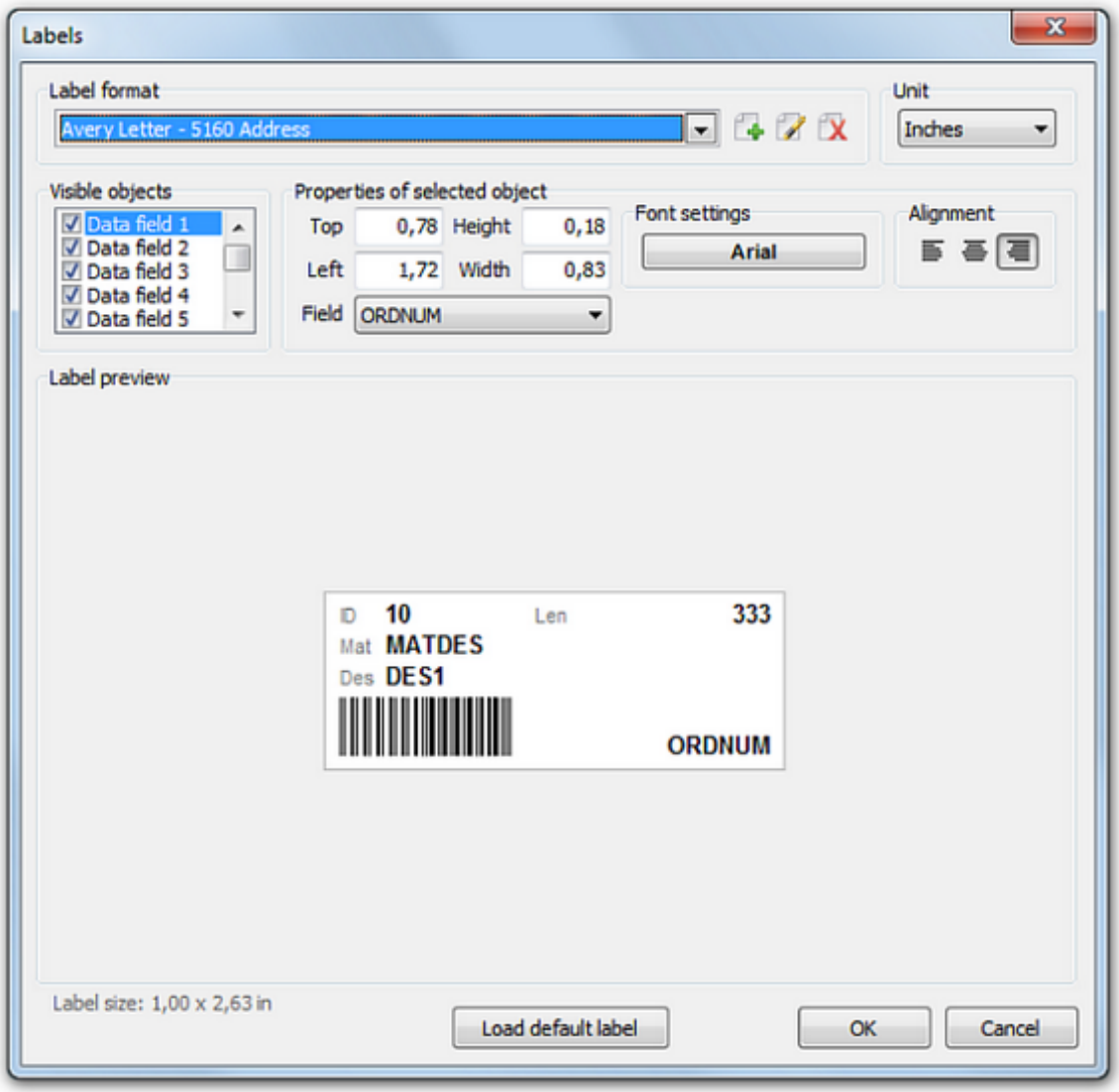
NOTE! CutLogic 2D has build in report editor – FastReport® generator. For details how to work with reports (printing and previewing) or for explanation regarding all report settings and/or export settings please download FastRreport user's manual from our web.

Editing of Label Reports

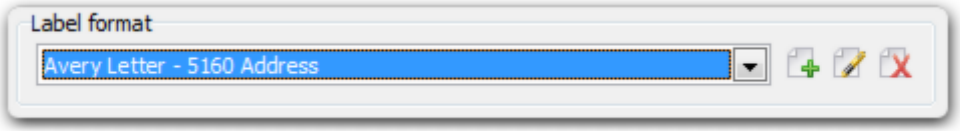
To start working with Simple Label Editor, select appropriate label report and click the button 

or data navigator button .

Simple Label Editor is very useful tool to accompany you to create and edit label reports quickly.



Label format

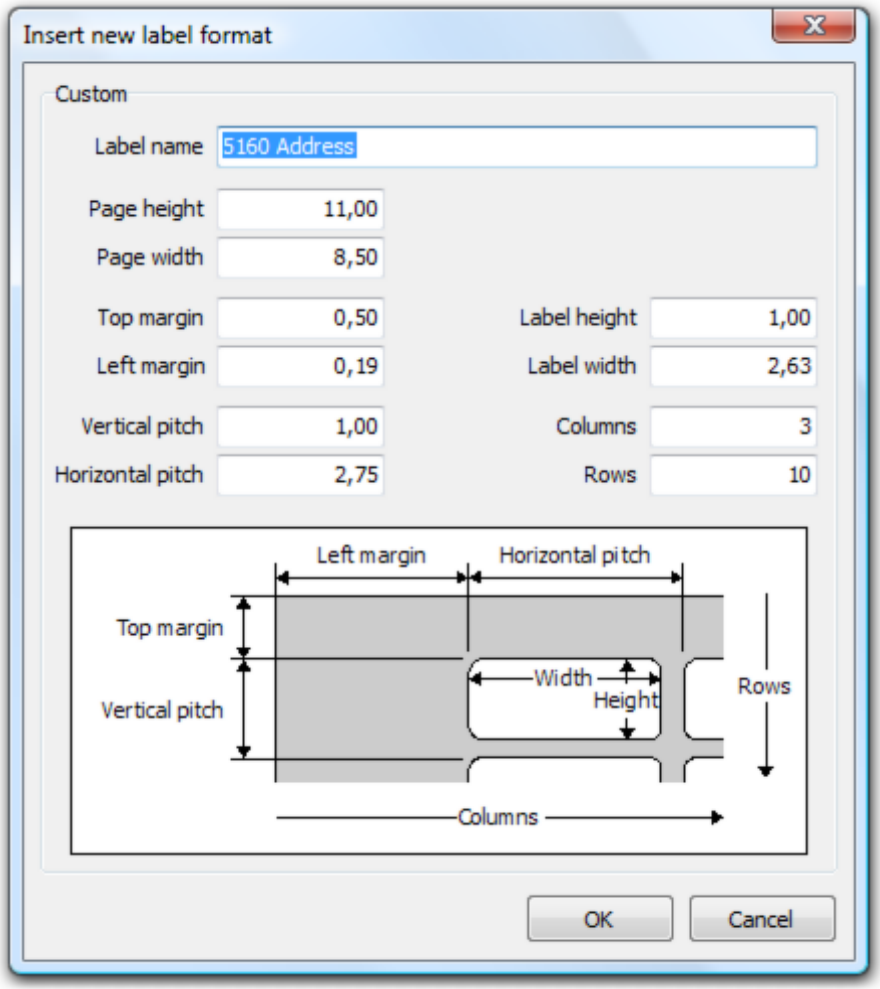


Here you can set format of label from hundreds of predefined label formats or you can create your own customized label format.

- Creates new label format.
- Starts property editor of selected label format.
- Deletes selected label format.

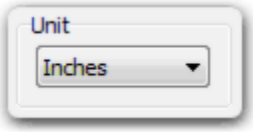
Label format editor

By clicking button or following property editor is shown.



Here you can set main properties of selected label format.

Unit



Here you can set desired units (Centimeters, Inches, Pixels).

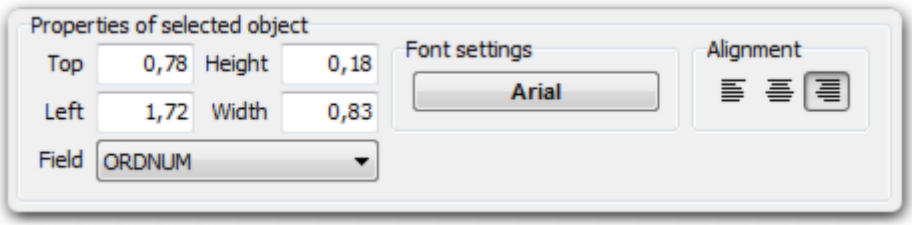
Visible objects

Here you can define objects, which you want to see on current designed label. It is possible to define 9 of Data field objects, 9 of Custom text objects and 2 Barcode objects. Check object, if you want to show it or uncheck desired object, if you want to set it invisible.

Properties of selected object

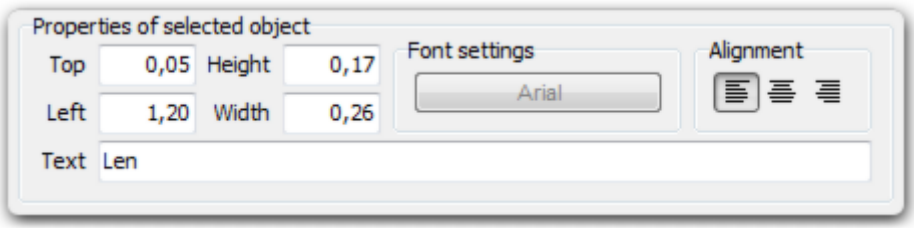
Here you can set properties of selected object.

Data field properties



Top	Sets top position of the object.
Left	Sets left position of the object.
Height	Sets height of the object.
Width	Sets width of the object.
Font settings	Displays font settings dialog.
Alignment	Sets text alignment (Left, Center, Right).
Field	Sets data field, which is displayed on the label.

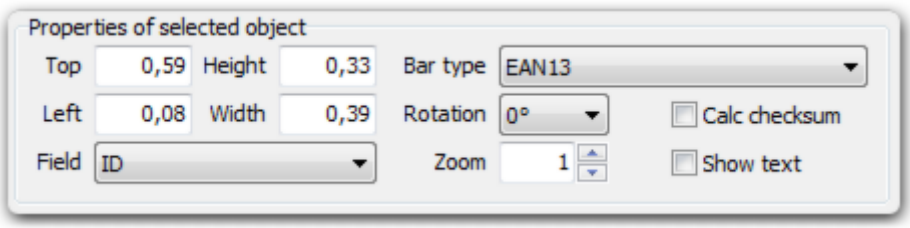
Custom text properties



Setting of custom text properties is similar to setting of data field properties. The only difference is that instead setting of data field from current dataset there is a

possibility to enter any custom text.

Barcode properties

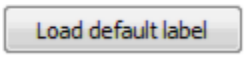


Top	Sets top position of the barcode.
Left	Sets left position of the barcode.
Height	Sets height of the barcode.
Width	Sets width of the barcode.
Field	Sets data field, which will represent the barcode data.
Bar type	Sets barcode type (many different types of barcodes are available).
Rotation	Sets rotation (orientation) of the barcode (0°, 90°, 180°, 270°).
Zoom	Sets zooming of barcode.
Calc checksum	Check, if you want program to automatically calculate checksum of the barcode.
Show text	Check, if you want to show text (from appropriate data field) on the barcode.

Label preview

Here you can see currently designed label, which is displayed very similarly to the final output (printing version), as in WYSIWYG (What You See Is What You Get) editors.

Loading of default label

Click button 

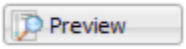
if you want to load label from default template.

TIP! If you are not satisfied with Simple Label Editor to create or edit label reports, you can create label reports as standard reports and arrange them according to your needs in embedded report editor - FastReport® generator (Professional and Enterprise editions only).

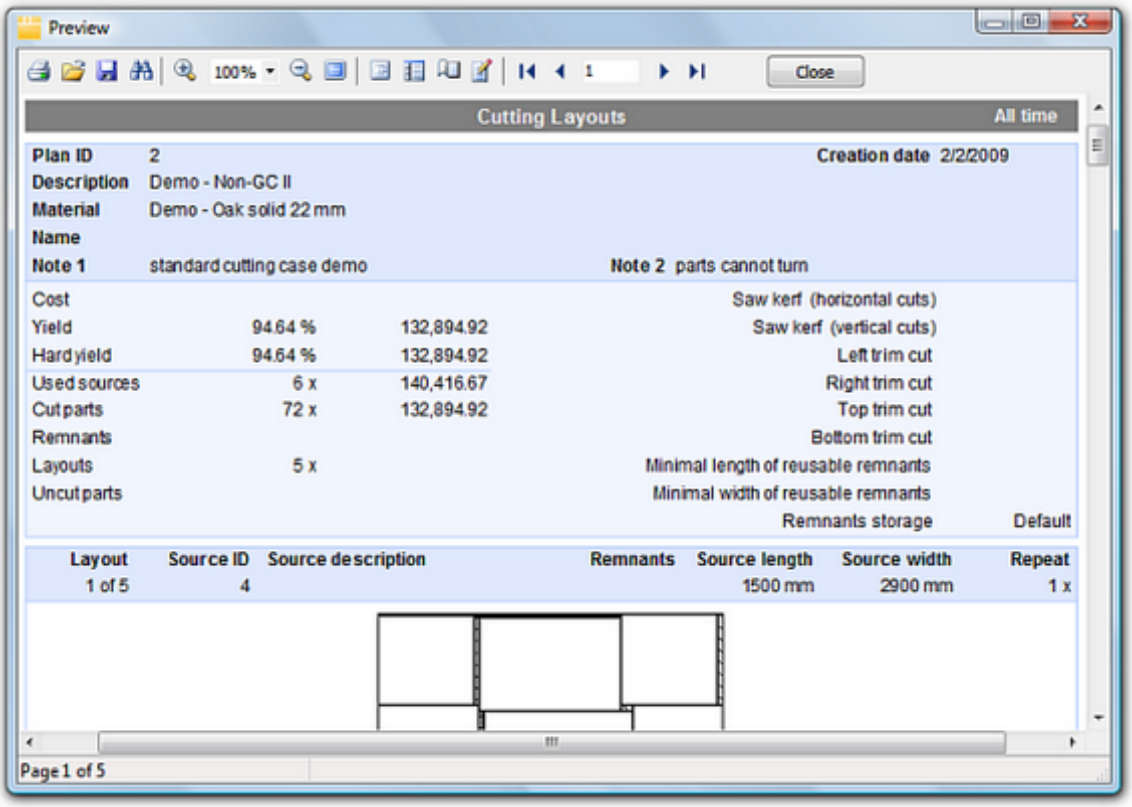
TIP! It is possible to create more standard and label reports and use them for printing, previewing, saving or exporting according to your needs (Professional and Enterprise editions only).

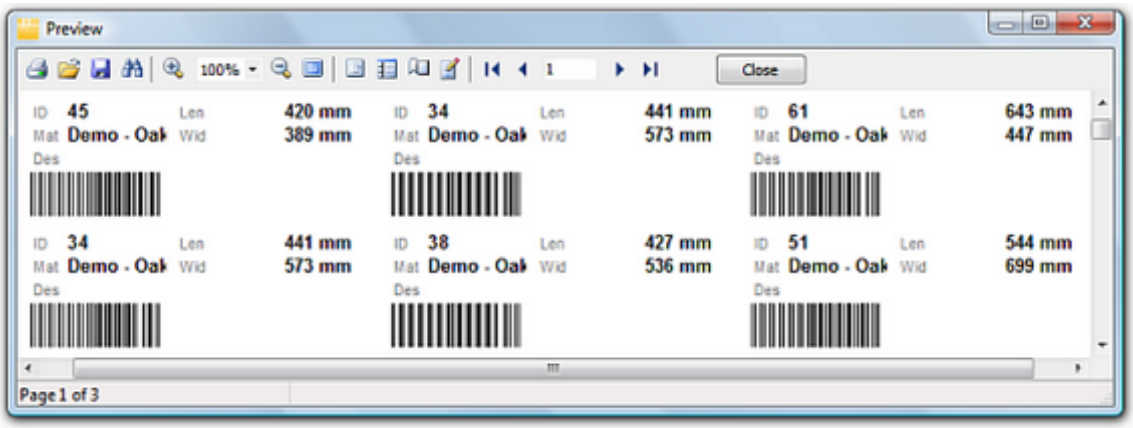
NOTE! Default reports can't be deleted or edited. However, it is possible to create a copy of these reports and edit them (Professional and Enterprise editions only).

Previewing of Reports

To preview selected report click the button 

or double-click the chosen report.
Following images show Cutting Layouts and Plan Part Labels reports in preview modes.





NOTE! CutLogic 2D has build in report editor – FastReport® generator. For details how to work with reports (print and preview) or for explanation regarding all report settings and/or export settings please download FastRreport user's manual from our web.

Import

General

CutLogic 2D provides very sophisticated and powerful features for import. Importing of data is very easy and user friendly. All commonly used input formats of source files are supported in the program. You can import data from Clipboard, CSV file, Text file, Microsoft Excel file, Microsoft Access file or via connection file. Importing of data via connection file brings unmatched versatility into CutLogic 2D and allows you to import data from more than 40 other sources - databases, tables and files.

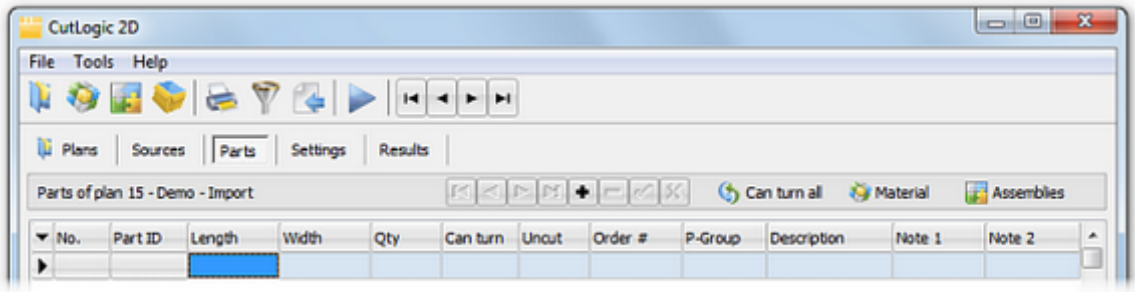
NOTE! See Editions comparison chapter to check if desired importing format or method is available in given edition of CutLogic 2D.

CutLogic 2D allows importing of data for following Views:

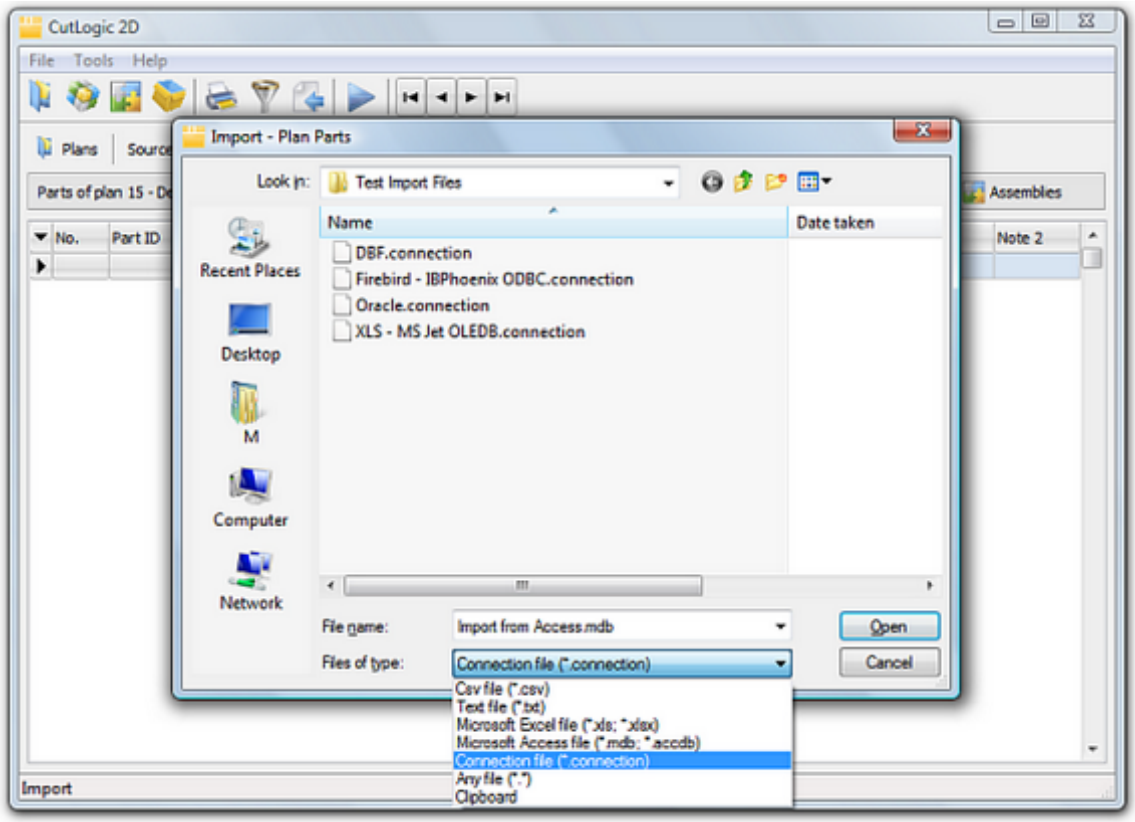
- Plans
- Plan Sources
- Plan Parts
- Materials
- Material Sources
- Material Parts
- Material Settings list
- Assemblies
- Assembly Parts
- Storages

How to Import Data

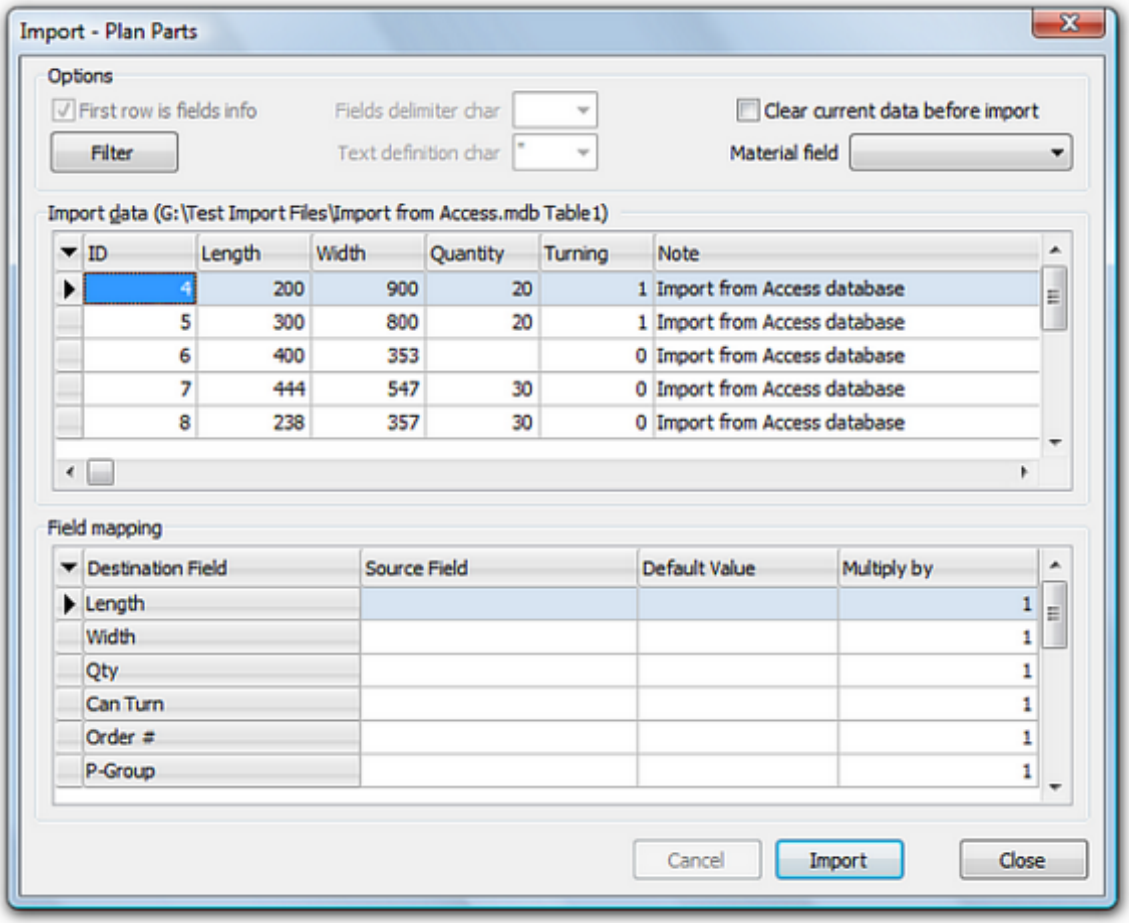
First, click desired tab to open form where you want to import data e.g. Plan Parts.


CutLogic 2D
File Tools Help
Plans Sources Parts Settings Results
Parts of plan 15 - Demo - Import
Can turn all
Material
Assemblies
No. Part ID Length Width Qty Can turn Uncut Order # P-Group Description Note 1 Note 2

Then click the button [Import] in the Main Toolbar or press keyboard shortcut [Ctrl+I] to open the Import form in new window.



Now define the path to the file containing data for import, select desired file format, pick the desired source file from the list and click the button [Open].


Import - Plan Parts
Options
First row is fields info
Fields delimiter char
Clear current data before import
Filter
Text definition char
Material field
Import data (G:\Test Import Files\Import from Access.mdb Table1)
ID Length Width Quantity Turning Note
4 200 900 20 1 Import from Access database
5 300 800 20 1 Import from Access database
6 400 353 0 Import from Access database
7 444 547 30 0 Import from Access database
8 238 357 30 0 Import from Access database
Field mapping
Destination Field Source Field Default Value Multiply by
Length 1
Width 1
Qty 1
Can Turn 1
Order # 1
P-Group 1
Cancel
Import
Close

Now, you can define structure of imported file, map the source fields to the destination fields and define some transformations like "Default Value" or "Multiple by" in this form. When mapping done, click the button [Import] to start importing of data. When import is done, you can start to work with imported data.

TIP! If you have prepared data to import stored in clipboard, you can import them directly by pressing keyboard shortcut [Ctrl+J].

Explanation of Import form:

Options

First row is fields info	If the first row of import file is fields information , names of the fields will appear in the table of imported data instead of Field1, Field2, etc.
Filter	Here you can set filter for imported data. See more about setting of filter in chapter Filtering of Data .
Fields delimiter char	Here you can set fields delimiter identical with fields delimiter in import file. (used only for *.txt and *.csv files)
Text definition char	Here you can set text definition in field. (Some text fields, e.g. Description or Note, can contain characters identical to "Fields delimiter char", therefore it is necessary to define these fields)
Clear current data before import	This check box allows you to clear all data from given View before Import.
Material field	Allows to set data field containing type of material of imported parts. If material field is defined and imported data contain more than one type of material, multiple plans will be created - each for one material. Parts with undefined (empty) material field are imported into current plan. (It is possible to set material field only for import of plan parts!)

Import data

Displays actual table format - structure of imported file based on selected Options. Shows how the fields and rows of the file are recognized. Important for *.txt , *.csv and *.* files.

Field mapping

Destination Field	Shows Destination field where source field will be imported.
Source Field	This is mapping field where you can set the name of Source Field, which will be imported to Destination Field. If you do not set Source field, to Destination Field won't be imported any value. For better orientation in names of imported fields see the table Import data.
Default Value	Allows to define default value for cases when values for given field are not defined (empty) in source file.
Multiply by	Allows defining multiply factor. It is number by which is numeric value of given field multiplied during the import.

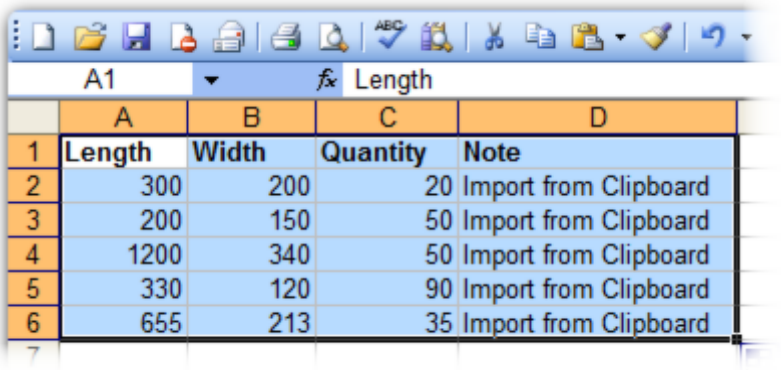
NOTE! When you import master data of Materials/Assemblies/Storages and defined value for field "Description" is already located in database, record with mentioned description will be overwritten by the newest (imported) data. Otherwise, if value for field "Description" is not located in database, new Material/Assembly/Storage will be inserted. Material/Assembly/Storage with undefined description can't be imported!

Examples of Imports

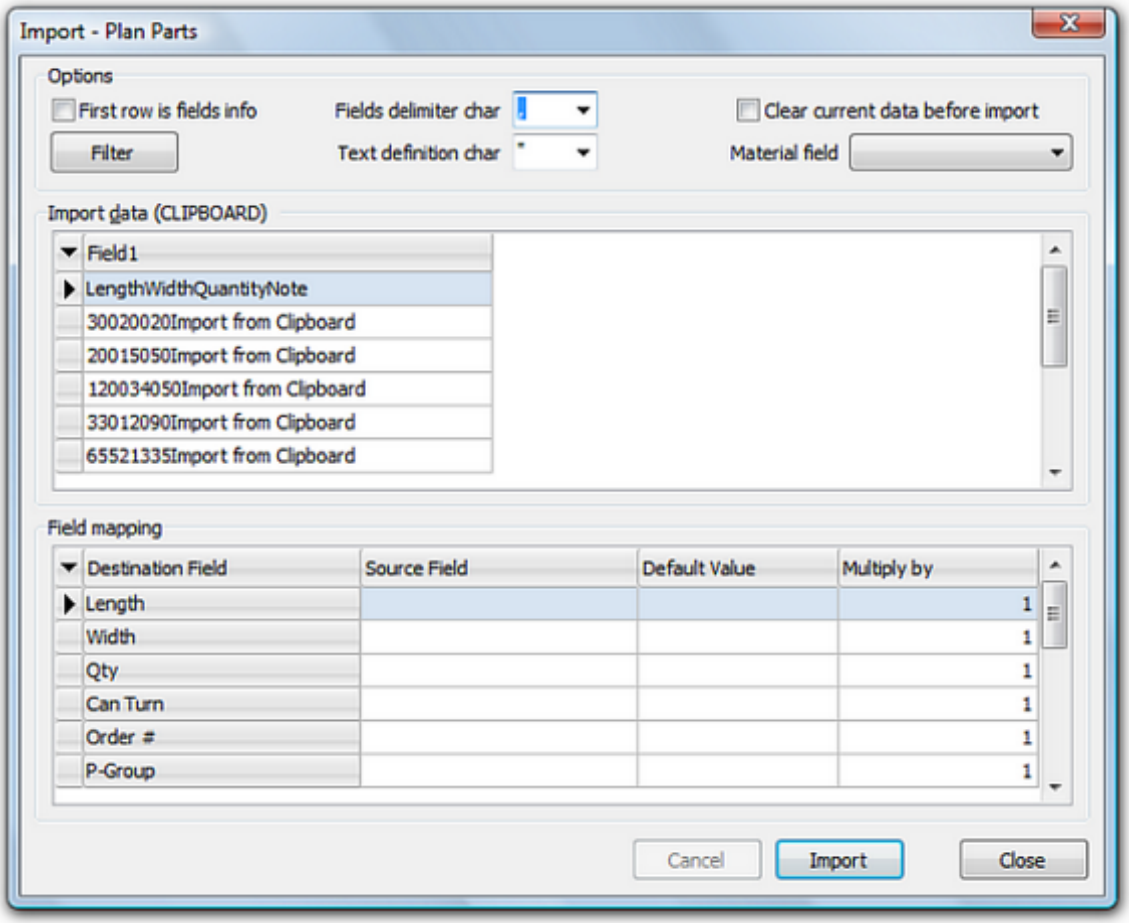
Importing from clipboard

Importing from clipboard is very similar to importing from any text based files like *.txt, *.csv or *.*.

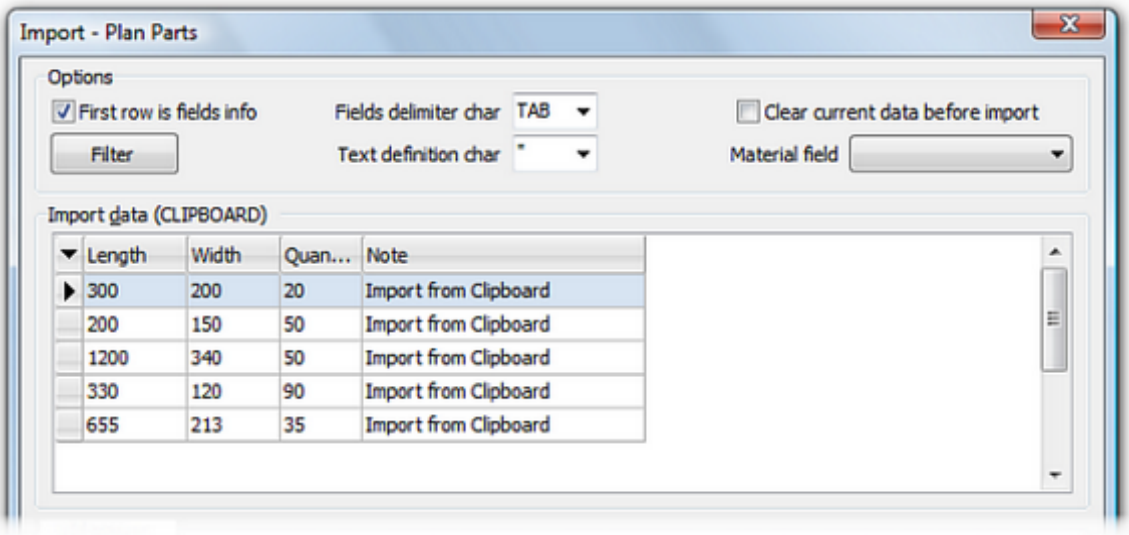
Before importing data from clipboard, it is necessary to prepare relevant data for import. In Excel, Notepad, Word, or any other editor (spreadsheet) choose the portion of data you want to import into CutLogic 2D. Then copy selected data to clipboard. Click the selected data with the right button of a computer mouse and choose "Copy" in popup menu or [Ctrl+C]. Data saved in this way is always at your disposal for import.


A1
Length
A B C D
1 Length Width Quantity Note
2 300 200 20 Import from Clipboard
3 200 150 50 Import from Clipboard
4 1200 340 50 Import from Clipboard
5 330 120 90 Import from Clipboard
6 655 213 35 Import from Clipboard

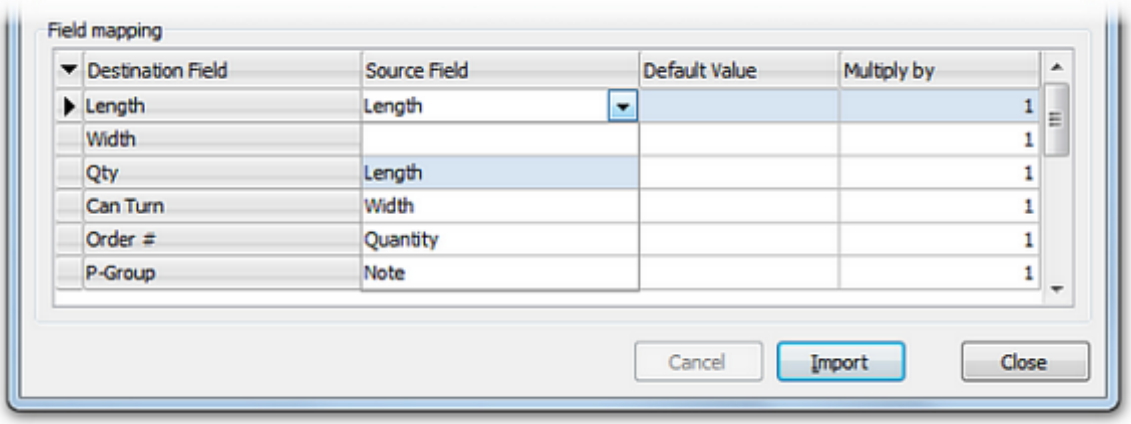
Having prepared data in clipboard you can start with import by pressing keyboard shortcut [Ctrl+J]. Import mapping form in our case shows following:



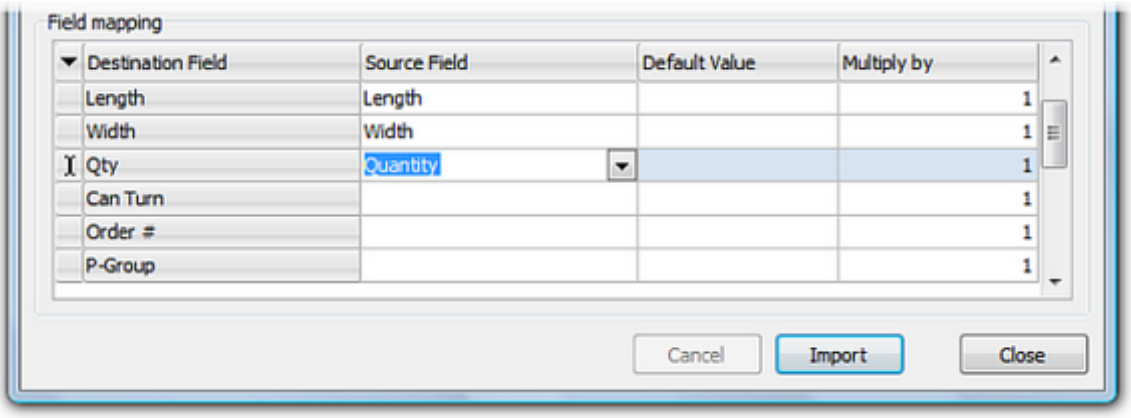
First we have to setup options in order to format source data from the clipboard to the form suitable for the fields mapping. In our case we have activated option "First row is fields info" and we have set "Field delimiter char" on "TAB" value.



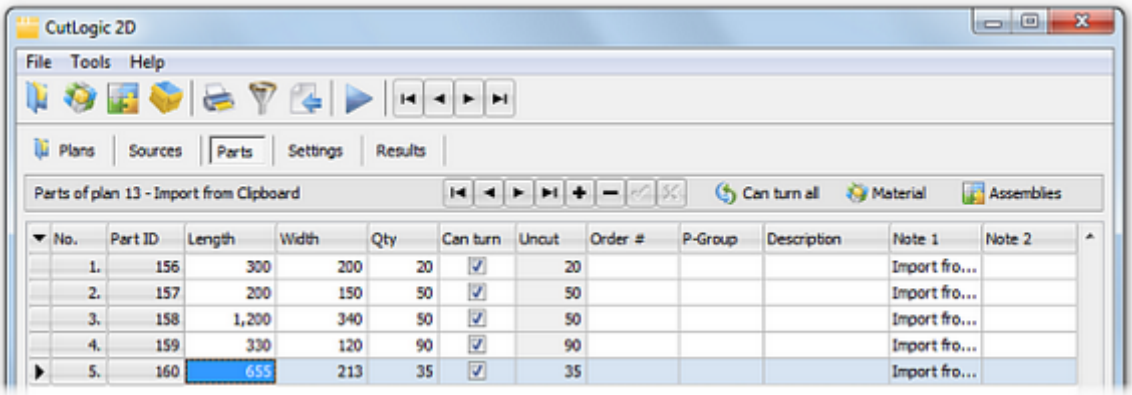
Now we can start to map the source fields to the destination fields. By left click on given "Source field" in the Field mapping table mapping list of available source fields opens.



Now we can pick one source field to map it on given destination field.
We continue until all mapping is finished.



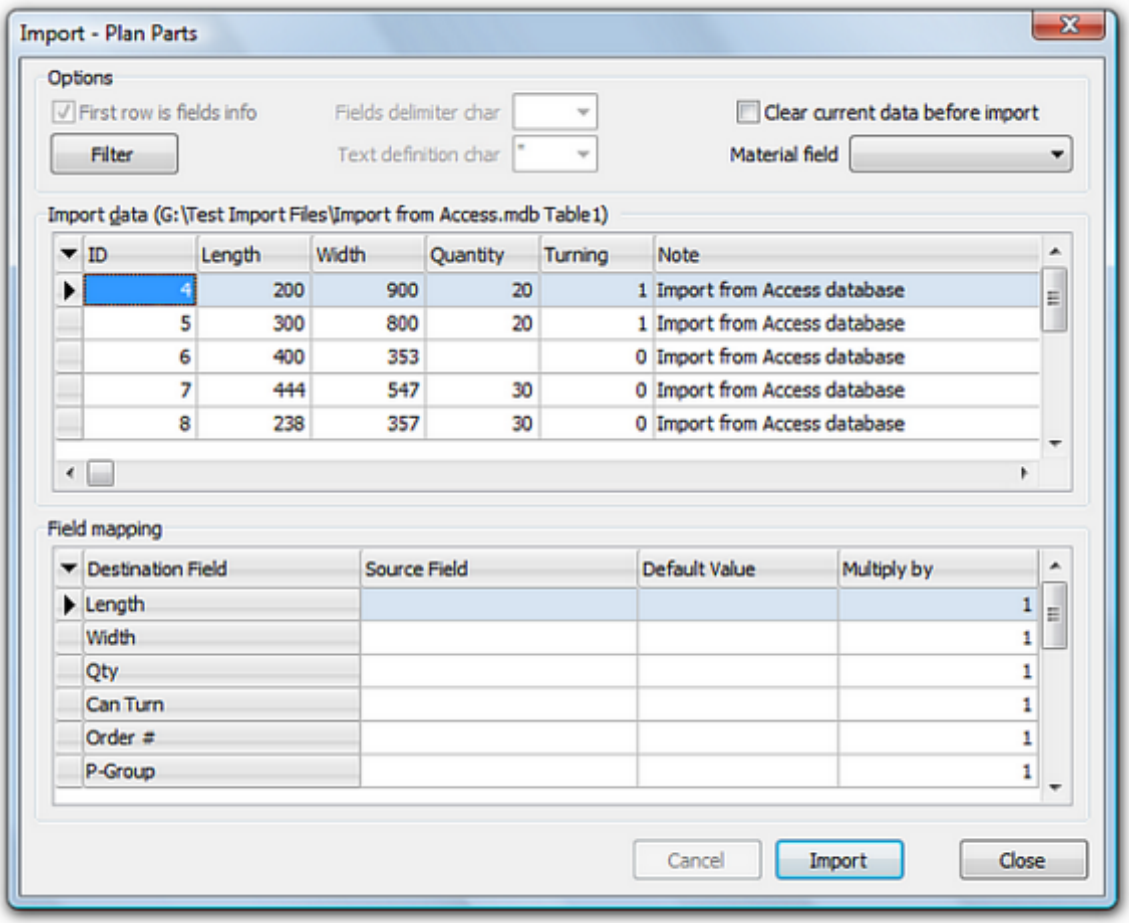
Now we can click the [Import] button and after import is done we can start to work with imported data:



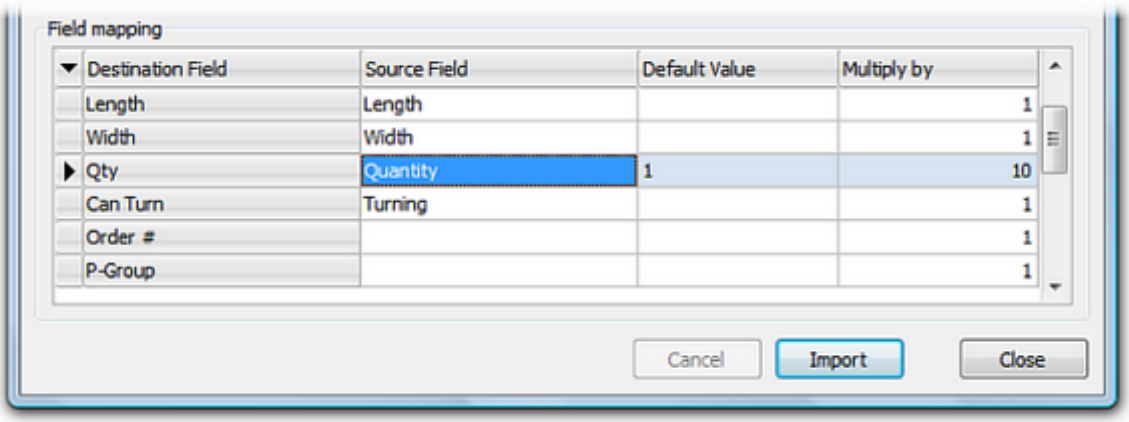
Importing from Access db file

Import from Access db files (*.mdb, *.accdb) is very similar to imports from any table based files like Microsoft Excel (*.xls or *.xlsx).

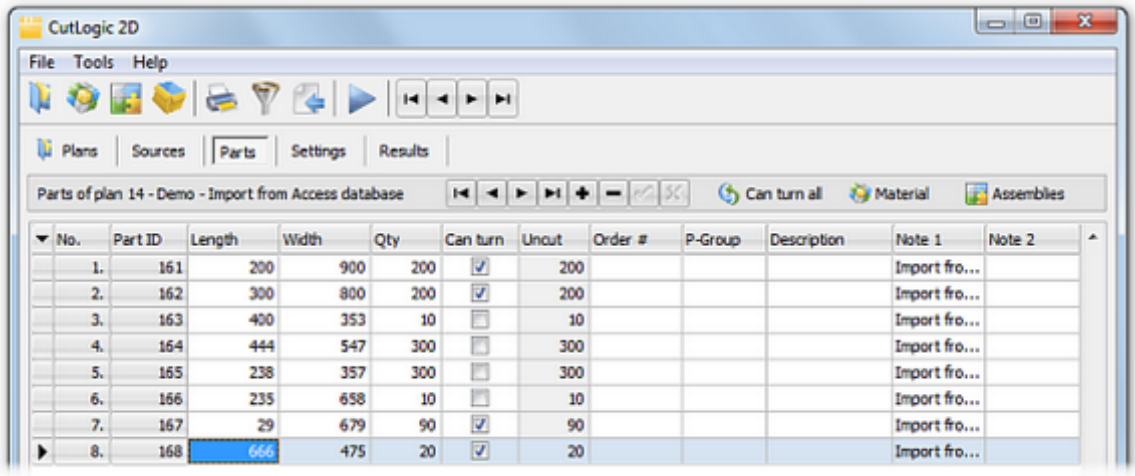
After defining the path to the import file and selecting of desired file following Import mapping form opens:


Import - Plan Parts
Options
First row is fields info
Fields delimiter char
Clear current data before import
Filter
Text definition char
Material field
Import data (G:\Test Import Files\Import from Access.mdb Table1)
ID Length Width Quantity Turning Note
4 200 900 20 1 Import from Access database
5 300 800 20 1 Import from Access database
6 400 353 0 Import from Access database
7 444 547 30 0 Import from Access database
8 238 357 30 0 Import from Access database
Field mapping
Destination Field Source Field Default Value Multiply by
Length 1
Width 1
Qty 1
Can Turn 1
Order # 1
P-Group 1
Cancel
Import
Close

Now we can start mapping. In our case we have used "Default Value" feature for field "Qty" because of some source data in Access file have no values and "Multiply by" column has been set to 10 on "Qty".



Now we can click the [Import] button and we can start to work with imported data.


CutLogic 2D
File Tools Help
Plans Sources Parts Settings Results
Parts of plan 14 - Demo - Import from Access database
Can turn all
Material
Assemblies
No. Part ID Length Width Qty Can turn Uncut Order # P-Group Description Note 1 Note 2
1. 161 200 900 200 200 Import fro...
2. 162 300 800 200 200 Import fro...
3. 163 400 353 10 10 Import fro...
4. 164 444 547 300 300 Import fro...
5. 165 238 357 300 300 Import fro...
6. 166 235 658 10 10 Import fro...
7. 167 29 679 90 90 Import fro...
8. 168 666 475 20 20 Import fro...

Importing via connection file

Import via connection files extremely extends importing capabilities of CutLogic 2D. Connection file is a file containing information how to connect to existing data source via specific ODBC or OLE DB driver installed on computer where CutLogic 2D runs. Connection file is simple text file with one line including connection definition, e.g. for MSSQL, file ThisSampleFile.connection would include:

Provider=SQLOLEDB;Server=myServerAddress;Database= myDataBase;Uid=myUsernam e;Pwd=myPassword;

For more information how to define connection string in your specific case see http://www.connectionstrings.com or other sources or contact your administrator.

Export

General

CutLogic 2D provides powerful features and rich functionality for export. Exporting of data is very easy and user friendly. Many output formats are supported in the program. You can export data to following file formats:

- TXT - Text
- CSV - Comma separated values
- XLS - MS Excel table
- HTML - Hyper Text Markup Language
- PDF - Portable Document Format
- RTF - Rich Text Format
- XML - Extensible Markup Language
- ODT - Open Document Format
- ODS - Open Document Spreadsheet
- DXF - AutoCAD Drawing Exchange Format

All mentioned file formats except DXF file can be sent as an email. Export of DXF file is specific type of export, allowing you to export cutting layout drawings.

NOTE! See Editions comparison chapter to check if desired output format is available in given edition of CutLogic 2D.

CutLogic 2D export is a part of Report form. You can export any report available in given report form. You can export reports from one of following report forms available in the program:

Reports - Plans

Reports - Materials

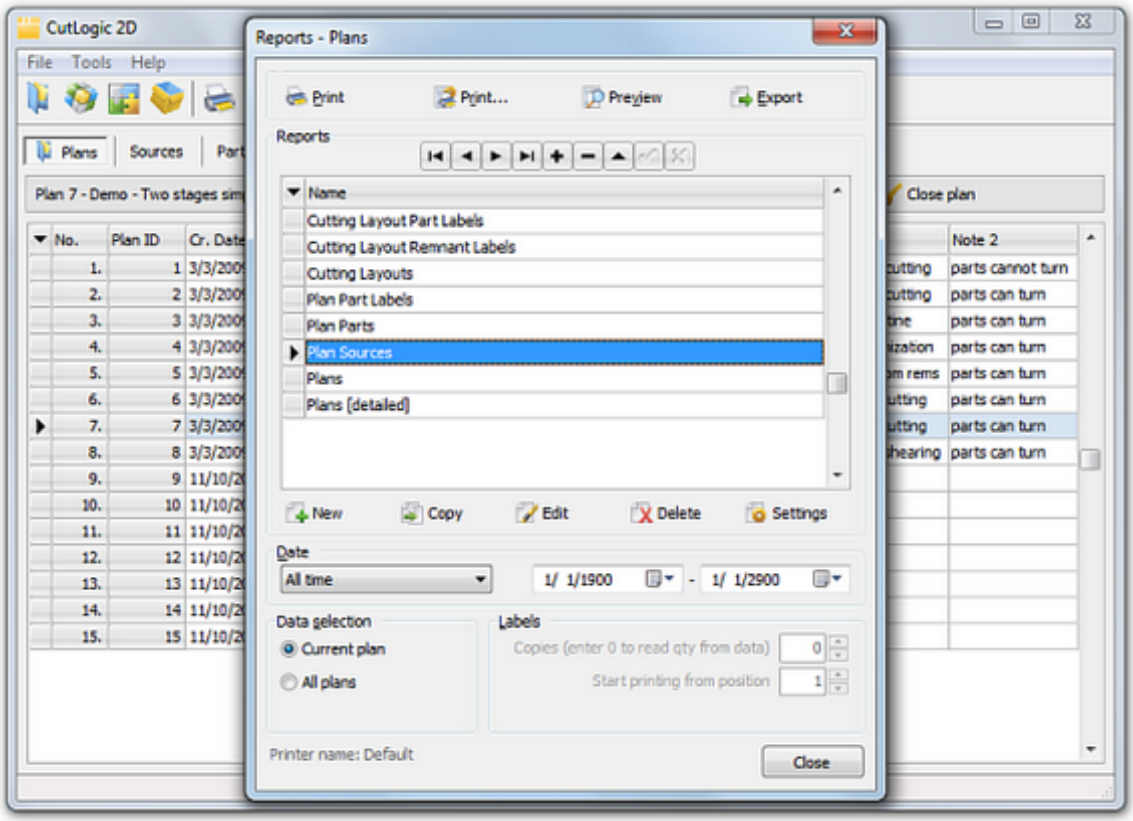
Reports - Assemblies

Reports - Storages

How to Export Data

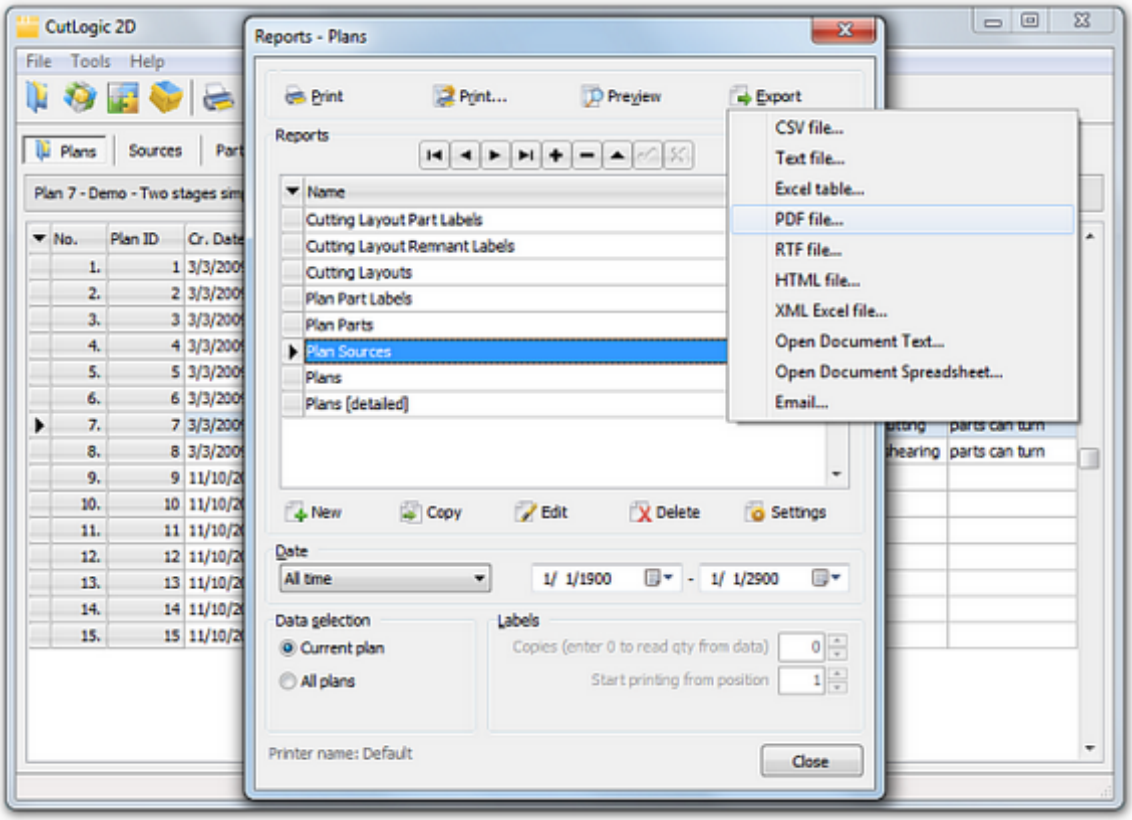
Export to standard file formats

To export data, first select desired View and click the button [Reports] in the Main Toolbar or select the menu item *"File > Reports"* or use [Ctrl+P] keyboard shortcut.

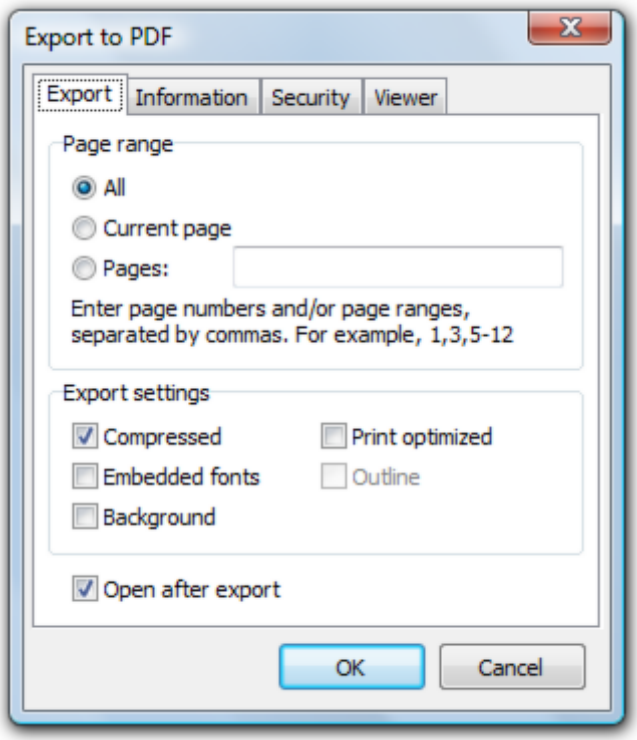


Select desired report from the list of available reports, set-up report options "Date" and "Data selection" and click the button [Export].

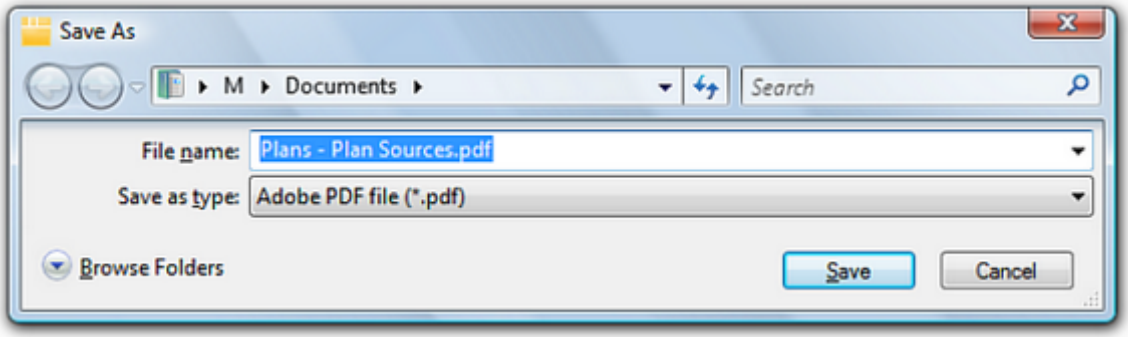
Select desired export format from the option list.

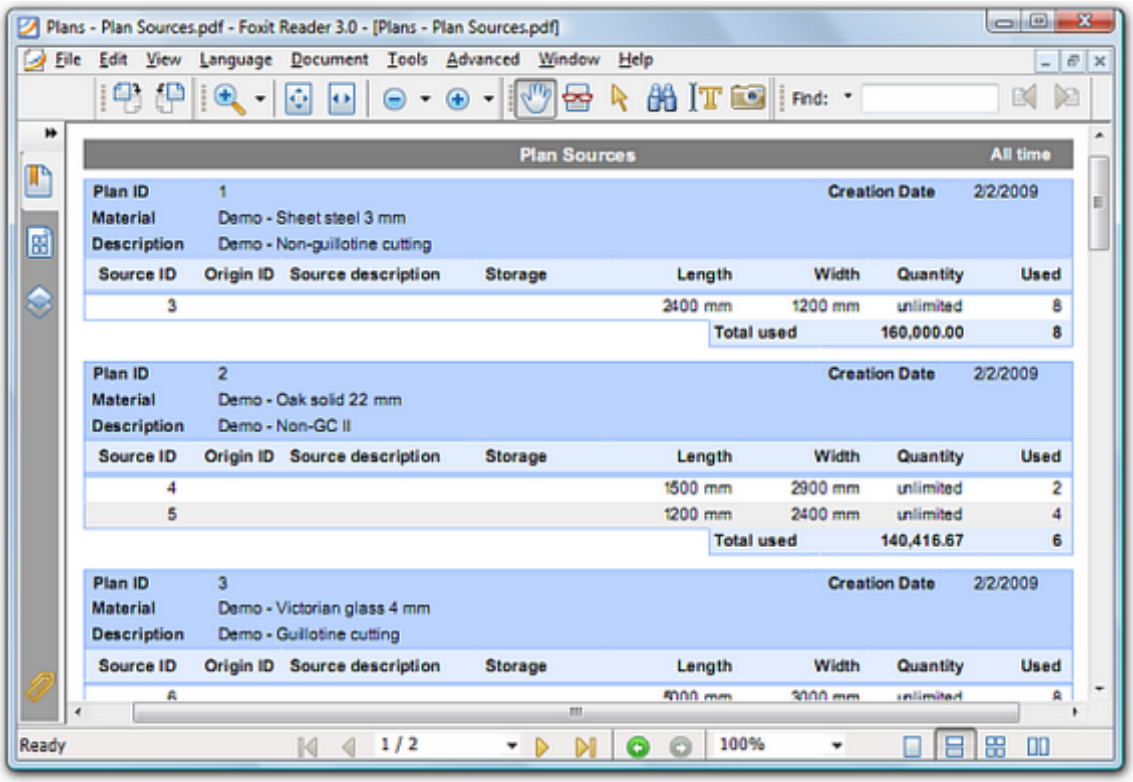


Check or change export settings and click "OK":



Select the file name and directory and click the button [Save]:




Plans - Plan Sources.pdf - Foxit Reader 3.0 - [Plans - Plan Sources.pdf]
File Edit View Language Document Tools Advanced Window Help
Find:
Plan Sources
All time
Plan ID 1
Creation Date 2/2/2009
Material Demo - Sheet steel 3 mm
Description Demo - Non-guillotine cutting
Source ID Origin ID Source description Storage Length Width Quantity Used
3 2400 mm 1200 mm unlimited 8
Total used 160,000.00 8
Plan ID 2
Creation Date 2/2/2009
Material Demo - Oak solid 22 mm
Description Demo - Non-GC II
Source ID Origin ID Source description Storage Length Width Quantity Used
4 1500 mm 2900 mm unlimited 2
5 1200 mm 2400 mm unlimited 4
Total used 140,416.67 6
Plan ID 3
Creation Date 2/2/2009
Material Demo - Victorian glass 4 mm
Description Demo - Guillotine cutting
Source ID Origin ID Source description Storage Length Width Quantity Used
Ready
1 / 2
100%

NOTE! CutLogic 2D has build in report editor and generator – Fast report. For details how to work with reports or for explanation regarding all report settings and/or export settings please download Fast report manual from our web.

Export to DXF file format

Export of dxf files is not a part of Report form. There are two ways how to export cutting layouts to dxf files. The first one is to export it manually from program menu (File > Export... > Export cutting layouts to dxf files...). The second one is to set auto export path. See more in chapter Setting the Options (DXF Export).

Following picture represents cutting layout exported as dxf file opened in CAD application.

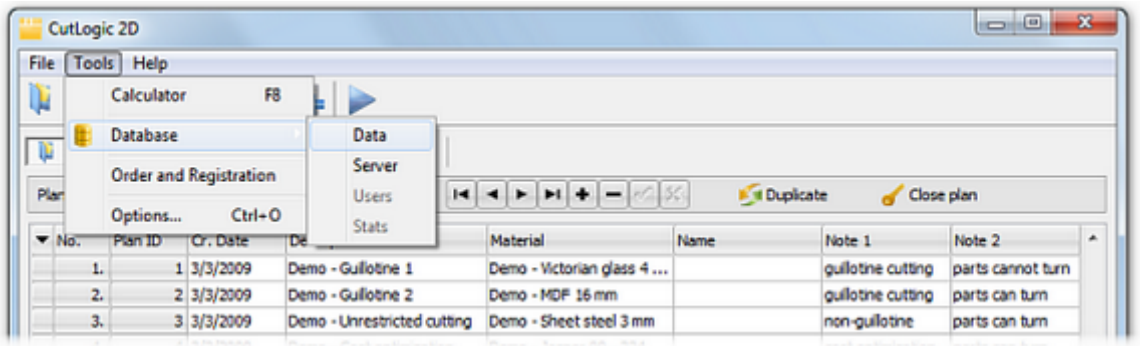
Layout 1 (4,500 mm x 2,000 mm) (Repeat 1x)
Saw kerf (horizontal cuts): 0 mm
Saw kerf (vertical cuts): 0 mm
Left trim cut: 0 mm
Right trim cut: 0 mm
Top trim cut: 0 mm
Bottom trim cut: 0 mm

Database Administration

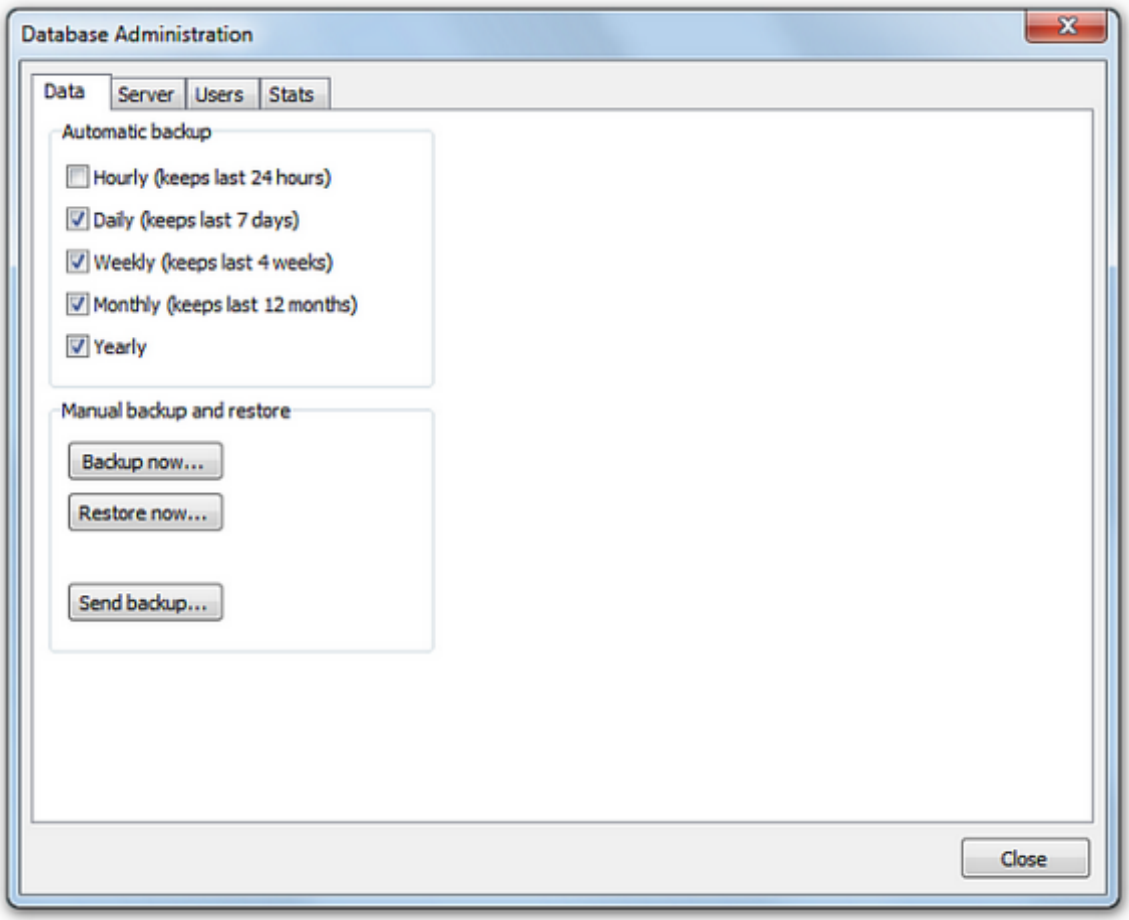
CutLogic 2D uses for its data Firebird database. It brings new features in terms of security, reliability, networking and data management into the program. This chapter describes how to maintain the data and the users.

Data backup and restore

To maintain the data select the menu item *"Tools > Database > Data"* .



Following Database Administration form opens in new window:



Automatic backup of the data

Automatic backup allows you to define frequency of creation the backup files. Check one or more options in "Automatic Backup" area to match your backup strategy.

NOTE! Automatic backup works in the time loop. If you chose, for example, hourly backup, system automatically creates new backup file every hour. After 24 hours new backup file replaces the oldest backup file, so that the oldest available backup file can not be older than 24 hours. Individual backups (Hourly, Daily, Weekly, etc.) work independently, so for example if you set on Daily and Weekly backups, Daily backup will keep backups for last 7 days (one backup per day); and Weekly backup will keep backups for last 4 weeks (one backup per week).

Manual backup and restoration of the data

You can backup or restore your data anytime as you need.

Send backup

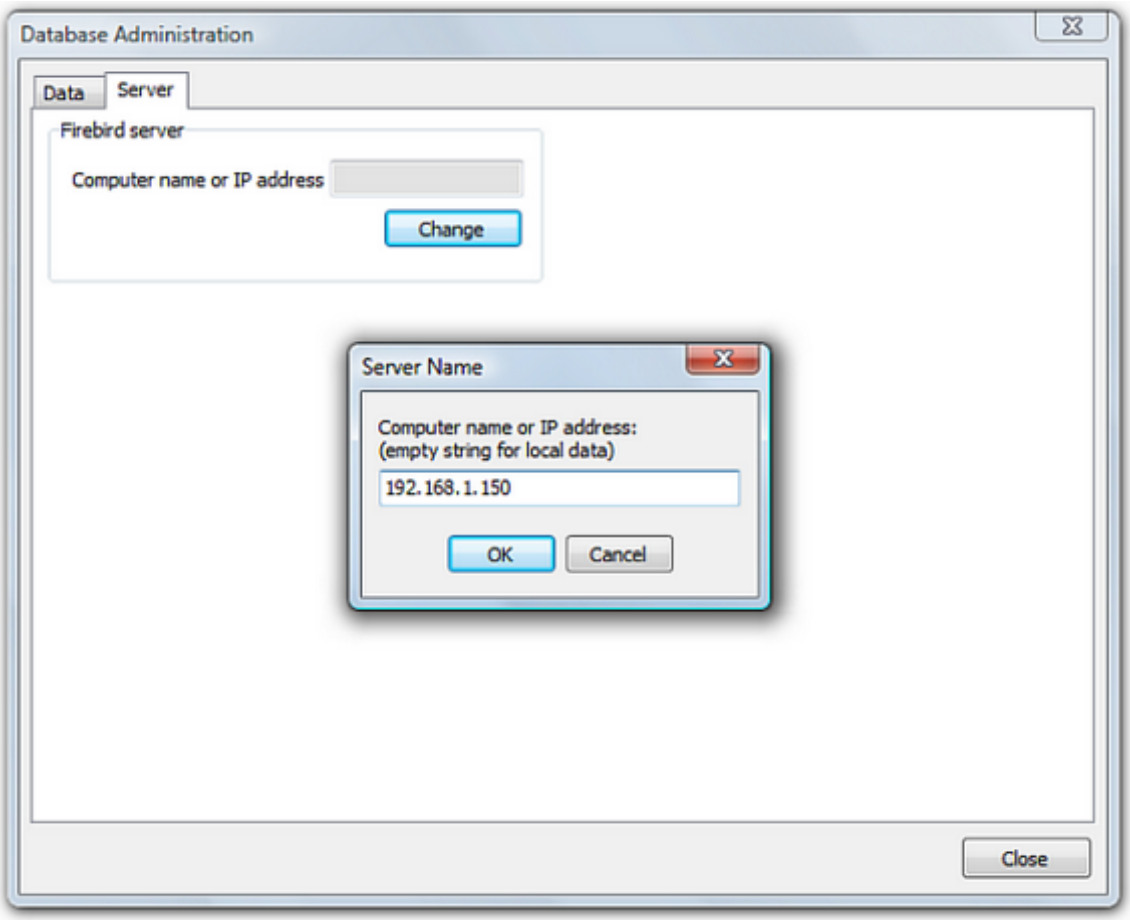
You can send your data via email for inspection in case of any damage or other purpose to our support department.

Embedded versus Network mode of CutLogic 2D

The CutLogic 2D works after the installation with embedded Firebird database. You do not have to install database separately - it is essential part of the program. However the data saved in this embedded database is not available for other users and can not be shared. Only way how to share the data is to install the Firebird database and switch the CutLogic 2D to the network mode.

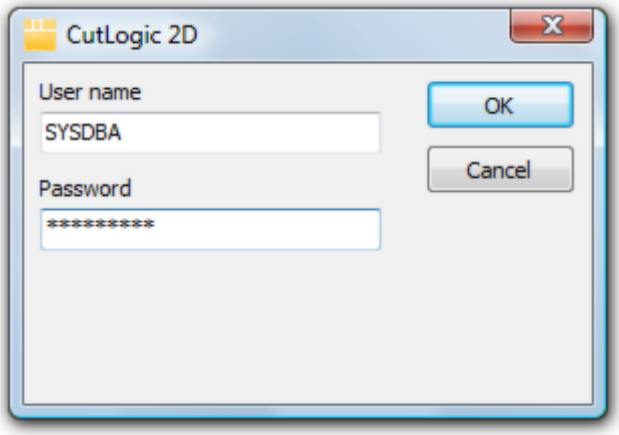
Changing CutLogic 2D to the network mode

To switch the program to the network mode, select the menu item *"Tools > Database > Server"* and click the button [Change].



Fill in computer name or IP address where Firebird SQL server is installed and click the [OK] button.

Program automatically restarts and new Login dialog box appears:



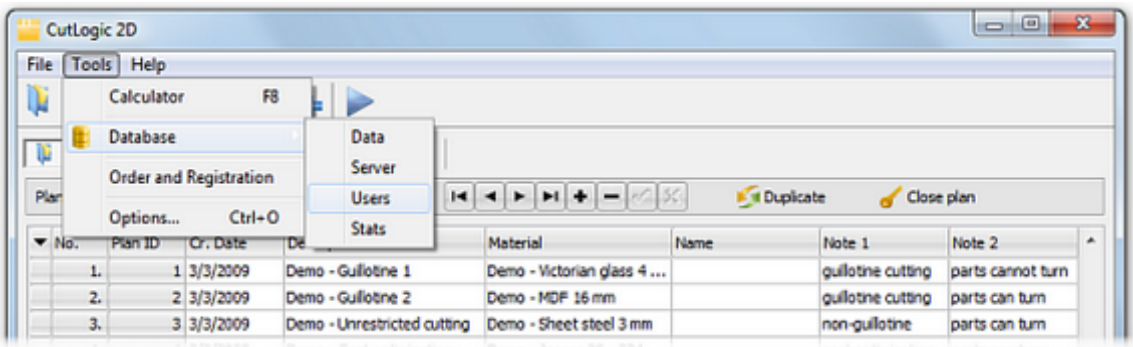
Fill in user name and password and click the [OK] button to start the program.

NOTE! Firebird SQL server contains default user "SYSDBA" with default password "masterkey". You can use this default user for login into CutLogic 2D or create new users and assign them as is described farther in this chapter.

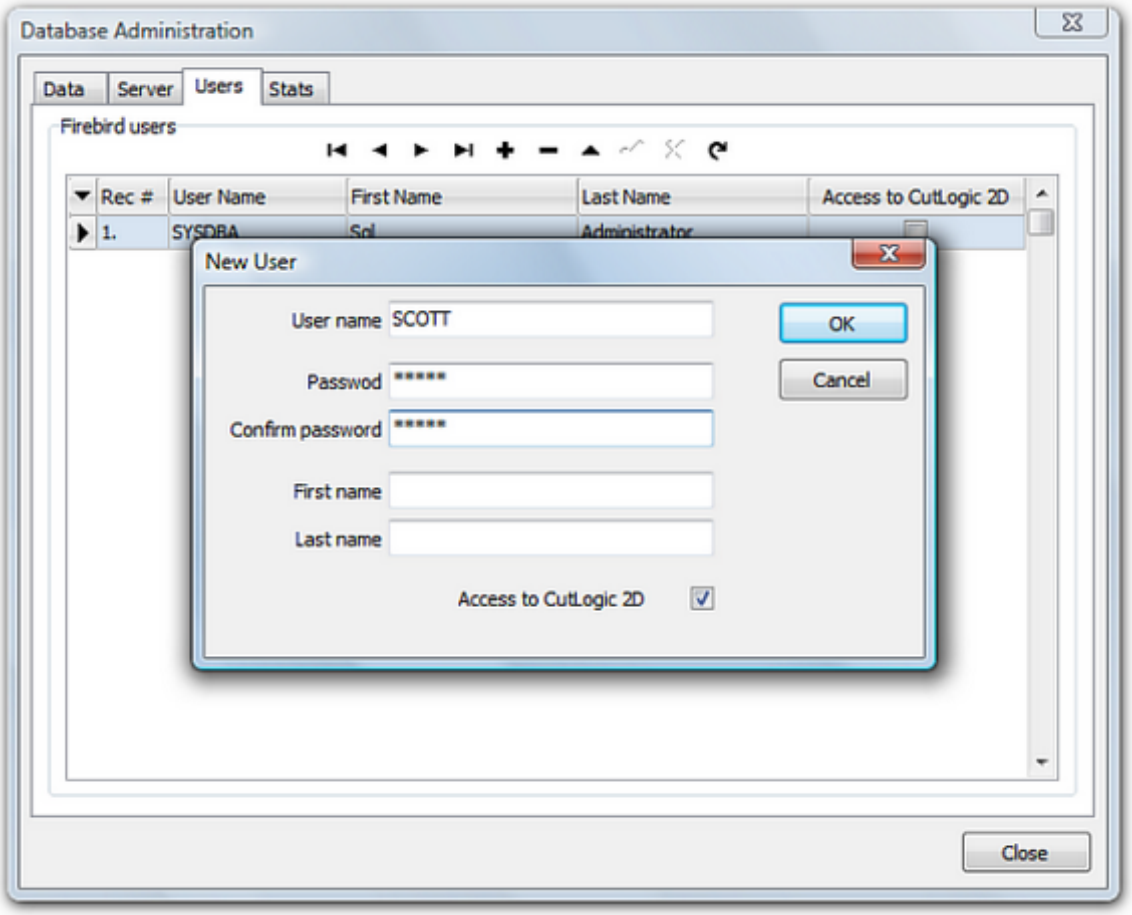
See also Network Installation.

Maintaining the users

CutLogic 2D has to work in network mode to allow working with users and showing the statistics.



To add new user, select the menu item *"Tools > Database > Users"* and click the button to add new user.

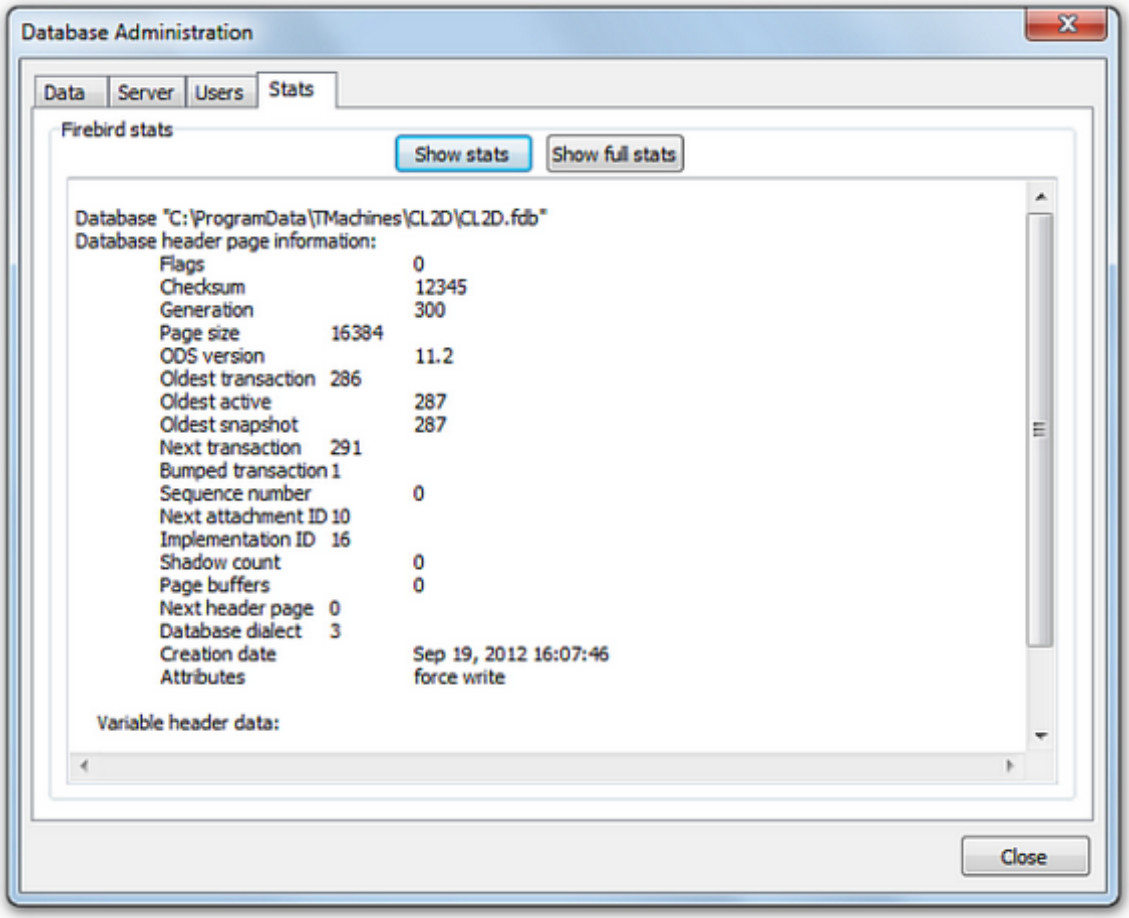


Fill in the user name and the password, confirm the password and check the Access to CutLogic 2D option and click the [OK] button.

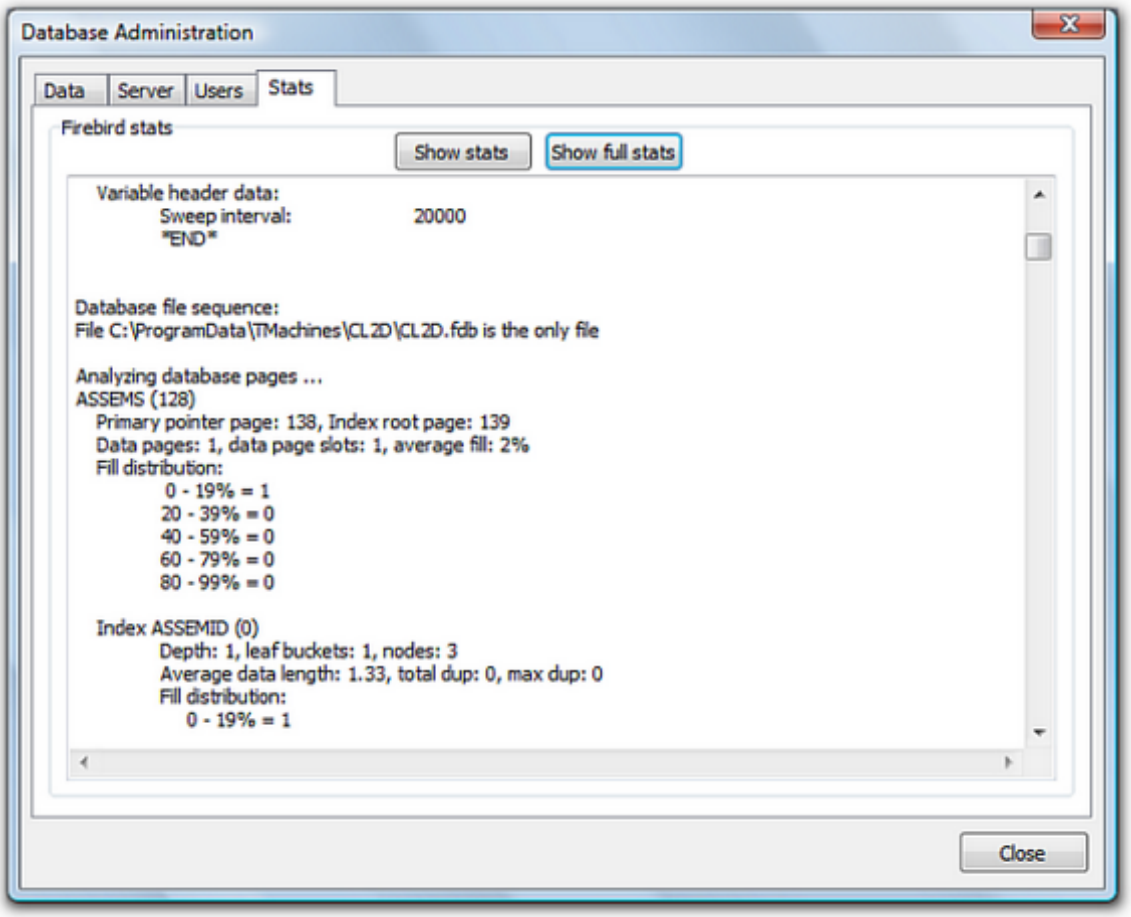
Statistics

The program allows showing Firebird database statistics. This feature can be useful especially for database administrators.

To show the statistics, select the menu item *"Tools > Database > Stats"* and click the [Show stats] button.



Click the [Show full stats] button to get detailed statistics.



Network Installation

First: Install Firebird and CutLogic 2D database file on the server

On the server computer:

1. Install Firebird SQL server (use default settings, don't change anything, just click [Next] buttons). Make sure that no firewall or anti-virus programs block Firebird to listen to client requests.
2. Copy or restore database file CL2D.fdb to chosen folder, e.g. C:\ABC\CL2D.fdb.

   To obtain CL2D.fdb, install CutLogic 2D on one of the station computers, then you will find CL2D.fdb on station at:

   on Windows 7: C:\ProgramData\TMachines\CL2D\CL2D.fdb
   on XP: C:\Documents and Settings\All Users\Application Data\TMachines\ CL2D\CL2D .fdb
3. In Firebird folder, open file aliases.conf and add to it line:
   TMachines.CL2D = C:\ABC\ CL2D.fdb

   on Linux e.g.
   TMachines.CL2D = /opt/databases/CL2D.fdb

   Make sure you have full write access right, and that file aliases.conf was really modified.
4. Write down computer name. It can be either computer name (e.g. JOECOMP), or IP address (e.g. 195.79.203.134). Further we will refer to it as to ServerName.

Second: Install CutLogic 2D on each station

On each station computer:

1. Install CutLogic 2D.
2. Run CutLogic 2D, go to *"Tools > Database > Server"*, and enter ServerName.

Third: Define users

1. Choose one station computer (any) and run CutLogic 2D, log in under username "SYSDBA" and password "masterkey".
2. Go to *"Tools > Database > Users"* and define users - their user names and passwords.

Fourth: Security

It is recommended to change SYSDBA's password from publicly known "masterkey" to your own one. To do it, run CutLogic 2D, log in under username "SYSDBA" and password "masterkey", and go to *"Tools > Database Users"*.

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